#1 Guide To Atari ST

START

Volume 4, Number 10 May 1990 USA $14.95 • Canada $19.95

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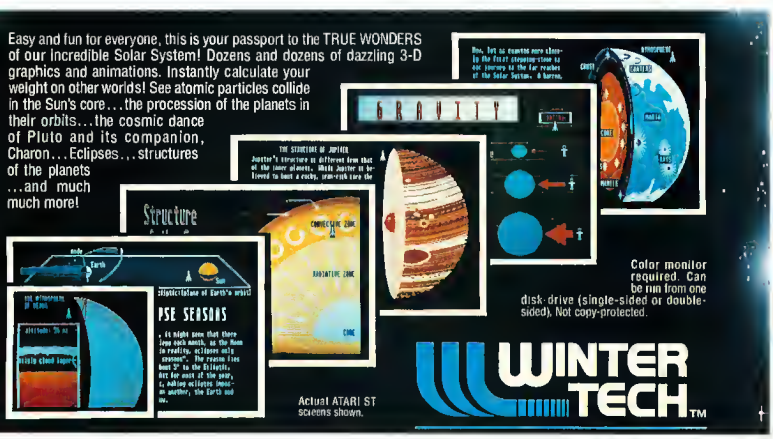

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Actual ATARI ST screens shown.

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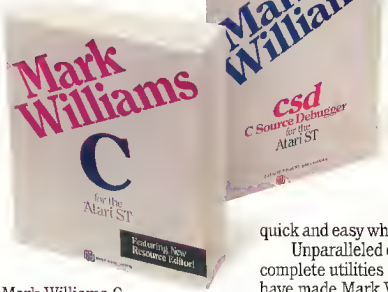

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#1 Guide To Atari ST

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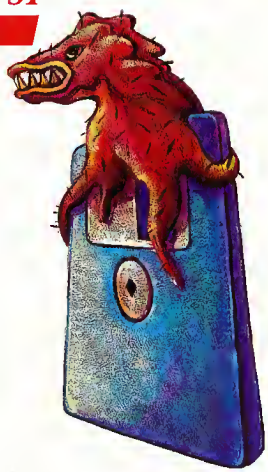

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PUBLISNER
James Capparell

EDITORIAL
Thomas R. Byron, Editor
Amy H. Johnson, Programs Editor
Marta Deike, Junior Editor
Andrew Reese, Graphics Editor
Jim Pierson-Perry, Music/MIDI Editor

Contributing Editors: Tom Hudson, Jim Kent, Stephen Mortimer, Mard Noman, Dovid Plotkin, David Ramsden, David Small

Contributors: Harvey Bernstein, John Damiano, Steve Johns, Greg Kowis, James W. Maki, Jerry McBride, John Nagy, Greg Perez, Michael R. Perry, George Woodside

CREATIVE SERVICES
Julionne Ososke, Director of Creative Services
Jim Worner, Art Director
Daniel C. Goodwin, Associate Art Director
Wendy Johnson, Advertising Production Coordinator

ADVERTISING SALES
Denny Riley
Western Region, (415) 957-0886
Michael Evans
Eastern Region, (415) 957-0886

CIRCULATION
Ira Epstein, Circulation Consultant
Ann Dunlap, Fulfillment Manager
Charlie Sullivan, Distribution Coordinator

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James Capparell, President; Richard D. Capparella, Board of Directors; Lee S. Isgur, Advisory Board; Mark Shir, Controller

ADMINISTRATION
Fidez Bituin, Accounts Receivable Supervisor

General Offices, Catalog Customer Service: (415) 957-0886, 8 a.m. to 4 p.m. Pacific Time. START, 544 Second Street, San Francisco, CA 94107. Credit Card Subscriptions and Catalog Orders: (800) 234-7001. Subscription Customer Service: For change of address and inquiries, include subscription labels and write to START Subscriptions, P.O. Box 3805, Escondido, CA 92025 or call (619) 485-7754, 9 a.m. to 4:30 p.m. Pacific Time.

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Editorial

THE START READER SURVEY — IT'S YOUR TURN

On the back side of this page you'll find the most comprehensive reader survey ever presented in START magazine.

Our editorial goal is to publish an invaluable resource for your ST, one which you'll save and reference again and again. In order to do this, we're asking you to tell us who you are, what kind of system you have, what you like about START and how we can improve. Please take the time to answer the questions. We'll use your responses to make START even better.

Thanks for your help. The results will be published in the October 1990 issue.

Alive and Kicking

Last January's NAMM show was significant for Atari and served as further proof that the ST is alive and kicking in the United States. In a booth/studio that made the other computer companies' pale by comparison (IBM was in a small booth in another building, Commodore was literally in the farthest corner and Apple didn't even show up), the Stacy, the Hotz Box and multitasking TOS — formally dubbed MIDI-tasking by Atari — were shown.

Atari's presence at this semi-annual music trade show was significant for two reasons: 1) everything they showed was *real* — the multitasking environment actually works and the Stacy and Hotz Box are shipping, albeit in their high-end configurations; 2) it was the clearest evidence to date that Atari is serious about the entertainment/music market. Thanks to the persistent efforts of Frank Foster, Director of Specialty Markets, and the entertainment division as a whole (which also handles the Lynx game system, another big winner), Atari is making an impressive comeback in the U.S. computer market.

pc-ditto II and Other Concerns

START has received a flurry of calls and letters concerning the whereabouts of Avant-Garde's pc-ditto II. After a number of false starts, the long-awaited hardware-based PC emulator is shipping. There were problems with the first production run (i.e., the product simply didn't work), but these have reportedly been taken care of. Watch for a full review of pc ditto II in the July 1990 issue.

And last but never least: the handsome young man on the cover of the February issue is my son Tommy. His credit was inadvertently omitted from the masthead. Isn't he the cutest baby in the world?

Tom Byron

TOM BYRON
START Editor

Survey

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❽ I ☐belong ☐don't belong to a user group.

❾ I have an account on the following BBSs:
☐BIX ☐CompuServe ☐GEnie
☐other. Which?_____

❿ I use my ST for ☐business ☐personal use.

⓫ How many people use your ST?_____

⓬ I own a ☐520ST ☐1040ST ☐Mega ST with ☐512K ☐1M ☐2M ☐4M of memory and ☐TOS 1.4

⓭ How many disk drives do you own?
_____single _____double

⓮ How many monitors do you own?
_____color _____monochrome

⓯ I now own or will buy:

own	will buy	
☐	☐	a dot-matrix printer
☐	☐	an Atari laser printer
☐	☐	a modem
☐	☐	a fixed hard drive
☐	☐	a removable hard drive
☐	☐	a tape backup
☐	☐	a Mac emulator
☐	☐	a PC emulator
☐	☐	MIDI equipment
☐	☐	a memory upgrade
☐	☐	another ST
☐	☐	a TT
☐	☐	an STE
☐	☐	a Stacy
☐	☐	a Portfolio
☐	☐	a non-Atari computer
☐	☐	a CD player
☐	☐	a VCR

⓰ Please list, from most frequent (1) to least frequent (14), the things for which you use your ST.
_____computer-aided design
_____databases
_____desktop publishing
_____drawing/graphics
_____education
_____games
_____home finance
_____Mac/PC emulation
_____music/MIDI
_____programming
_____spreadsheets/business
_____telecommunications
_____word processing
_____other. What?_____

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⓲ I think the START articles are:
☐simplistic ☐informative ☐too technical
☐easy to read ☐hard to read
☐too short ☐just right ☐too long

⓳ I think the START reviews are:
☐incomplete ☐comprehensive
☐helpful when buying products.

⓴ I think the START programs are:
☐useful ☐limited ☐fun
☐interesting ☐better left un-ARCed

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㉒ I want START to devote magazine space to the following:

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☐	☐	☐	hardware reviews
☐	☐	☐	hints and tips on applications
☐	☐	☐	Mac & PC emulation
☐	☐	☐	MIDI/music applications
☐	☐	☐	new product notices
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☐	☐	☐	software reviews
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☐	☐	☐	trade show news
☐	☐	☐	TT, Stacy and Portfolio

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More	Less	Same	
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☐	☐	☐	children's programs
☐	☐	☐	database programs
☐	☐	☐	games
☐	☐	☐	graphics/CAD
☐	☐	☐	indexes (like Softguide)
☐	☐	☐	math/statistics packages
☐	☐	☐	music/MIDI
☐	☐	☐	new product demos
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☐	☐	☐	source code
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☐	☐	☐	utilities
☐	☐	☐	word processing

Dialog Box

Small Fan

I enjoyed the article titled "The Quest for Speed" by David Small (START, December 1990) very much. I especially enjoyed the breadth and depth of the article. I think it included just about everything I needed to know about speed and the ST in that article. You covered not only the products but also gave me a framework to think about my own computing needs in relation to the products. Wonderful!! The article even included a reminder that if your software is too slow, check to see if the updated version is faster.

I have subscribed for a little over a year to your magazine and I would love to see more articles that have the same range and depth as this one.

Bill Moore
Vancouver, BC

We, too, are big Small fans and we're working hard to bring you the depth and range you destre. You, our readers, can help us do so by filling out the survey included in this issue. — START Editor.

Wither Atari?

Our beloved Atari Corp. has promised advertising campaigns many times in the past and I have never seen them actually surface with any volume. Furthermore, Atari's marketing is nothing short of lousy in the United States — there are very few ST dealers, so support for the ST is shaky. Commodore recently launched a $15 million advertising campaign for the Amiga. ST developers have even formed their own defense group [the Atari Developers Association] in order to urge Atari to support the ST in product development and sales. Apparently, the ST community feels that Atari is not putting enough effort into selling their computers.

This criticism does not come lightly. I have been a very devoted Atari advocate for many years and I appreciate Atari for producing a computer that really does deliver on the promise of having "Power without the Price." But Atari needs to put some effort into some real hard advertising or the ST line is in jeopardy.

I have written to Atari with this concern and I would like to urge anyone else who feels as I do to do the same. A mail campaign might just be the persuasion the brass at Atari needs to put some effort into advertising. I believe ST users are tired of hearing about promised ad campaigns and now want to see some ads and even some more dealers out there, and push to make the ST (or even the STE or the TT) the new PC of choice for the United States. So come on START fans, write to Atari!

Erik J. Reker
Fairbanks, Alaska

Sam Tramiel is the chief executive officer of Atari Corp.; Meades Ames-Kline is the new president of Atari U.S., which oversees both the computer and entertainment divisions. Both officials can be contacted through Atari's Sunnyvale address: 1196 Borregas Ave., Sunnyvale, CA 94088. — START Editor.

Procedural Problems

I'm having a problem with a program on the January 1990 disk. When I try to run the program, "GDOS Printer Drivers in GFA BASIC," I get an alert message. It says "3 bombs - address error Odd word address! Possibly at Dpoke, Dpeek, Lpoke or Lpeek." I think I have isolated the problem in the first lines of the Procedure Openwork (device%).

```
Procedure Openwork (device%)
'
' Opens the device workstation for output.
'
Dpoke Contrl+2,0
Dpoke Contrl+6,11
Dpoke Intin,Device%  Suspect this line bad?
Dpoke Intin+20,2
Vdisys 1
```

I have a 520 ST with two double-sided drives. Any suggestions?

Oscar Perris
Redlands, Calif.

Jim Burton, GDOS Printer Drivers programmer, replies:

I've retested the GFA BASIC 2.0 code as it appeared in START and it works fine. The problem may have arisen due to the fact that GDOS is very unforgiving — if there is not enough memory, or if the ASSIGN.SYS file is incorrect or corrupted, then GDOS will not function. But because GDOS doesn't do any error checking, it ends up confusing GEM, which is why I've gotten bombs and lockups and bus errors when experimenting with GDOS.

Be sure that you don't have a lot of desk accessories in memory, or a large RAM disk, and that you have some room on your current drive to store the temporary file which is created and deleted while GDOS runs, that the ASSIGN.SYS file is in the proper format, that your printer driver is listed at the proper place in ASSIGN.SYS, as described in the article, and that ASSIGN.SYS and the printer driver are in the root directory of the boot drive (whew).

If you're sure that you have everything set up properly and the GDOS Printer Drivers program still doesn't run, then perhaps one of your files is corrupted. ▶

I've Got Mine

My X-10 Controller hardware arrived yesterday. I tried it immediately with the X-10 Controller software (February 1990). It didn't work. On trying to set the X-10 clock, or base code, or run its diagnostic, I got the "X-10 is not responding" alert box and the program exited.

It was hard to tell if I had a bad controller or bad software, so I looked at the documentation that came with the hardware, got out my C compiler, and wrote a program that determined that the hardware worked. After I had successfully downloaded my first direct command I noticed the interface returned a new status code. I tried DARKROOM.GFA again and it worked.

The problem is DARKROOM.GFA won't work with an interface right out of the box because the hardware's status code is zero. You have to download successfully to change it to non-zero, but it won't download until the status changes. Catch-22.

Wayne E. Wright
Round Rock, Texas

According to the author of the X-10 Controller software, Howard MacOdrum, you can download when the status code is 0. In fact, that's the only thing you can do. Whenever the X-10 hardware is unplugged from the wall, or the battery runs down, or it is taken straight from the box, the status code is set to 0. Download a file, any file, to change it to non-zero. You'll then have access to the clock and diagnostics. — START Editor.

In Case You Forgot

Are you aware that there is a minimum of six memory upgrades now available for the ST? Wouldn't it be wonderful and helpful if a magazine such as START would contain an article comparing these upgrades on points such as ease of installation, reliability of connections, speed differences for the MMU chip to recognize added memory, possible incompatibility problems with some software, etc.?

You have some of the best people in the ST community writing for START. Why not utilize their talents to equip anyone who wants more memory in their ST with the information to make a wise choice on a reliable upgrade?

Robert P. Zeis
Pittsburgh, Pa.

You make an excellent suggestion — an article of this type is long overdue. We're happy to say that START finally has something in the works. Watch for a full review soon. — START Editor. ■

Alert Box

We're still getting cards and letters about errors from nine months ago. So this is a catch-all recitation of complaints and solutions.

Boingo (October 1989) and Final Approach Controller (November 1989) do not work with less than 1M of RAM. Again, we apologize for failing to mention that in their articles. We currently see no way of decreasing their memory needs.

Additionally, Final Approach Controller was not compiled, as the article stated. It runs under GFA BASIC's run only interpreter. Double click on GFABASRO.PRG, which was included on the disk. From the file selector, choose APPROACH.GFA.

The datafile for Madam Librarian (January 1990), named LIBRARY.MGI, is too large to be loaded into a machine with less than approximately 730K of free RAM. This is the cause of the error message "Error in PROCEDURE READFILE at line 894." If you have a smaller amount of RAM, simply break LIBRARY.MGI (an ASCII file) into smaller pieces using your word processor, save the files as ASCII with a .MGI extension, and load them separately.

The problem several people experienced with Mystic Realm (January 1990) of failing to be resurrected when several extra lives were clearly indicated, is being looked into by the programmer, John Lince. The source code was not published in January, as the article said, but was put on the February disk.

The files for the X-10 Controller program were not named X10CTRL, as the article claimed. The filename is DARKROOM; the extensions are the same as stated in the article.

There have been complaints of a flickering mouse cursor and a rapid-fire deal in Mountain Solitaire (March 1990). Michael Gilbert is investigating.

If you were frustrated by the mysterious non-appearance of the ICD FA. ST Tape Backup review advertised on the April cover, take heart. It's in this issue. ■

SUBMISSION INFORMATION

START welcomes submissions. Please include both hard copy printouts of articles and program listings as well as disk files on ST compatible disks. Media will be returned if self-addressed, stamped mailer is supplied. START assumes no responsibility for unsolicited editorial materials.

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WINTER 86

Features: Jack Tramiel Interview, Buyer's Guide.
On Disk: Noise Doodling; Address Book; Auto Dialer; Label Printer;ST Writer Secrets.
Reviewed: Mark Williams C.; Menu+.

SUMMER 87

On Disk: The aSTronomer: Text Compression and Huffman Coding with Personal Pascal: Flicker Animation Program; MIDISAVE.
Reviewed: Word Writer ST; Data Manager ST; Swiftcalc ST; Five BASICs compared

SPECIAL ISSUE #2

Features: Drawing and Painting Programs Overview Desktop Video; How to Set Up Your own MIDI Studio; Rock' n' Roll with Atari; Shopping List of Music Hardware.
On Disk: The Cartoonist; MIDI View; Ear Trainer.
Reviewed: Synth-Droid; Xsyn Patch Editors; Music Studio and Music Construction Set.

WINTER 87

Features: The Atari Mega 4; Zoomracks; The ST in Hollywood; How Not to Shop at a Computer Store.
On Disk: STARTKey; ST Writer Meets the Mouse.
Reviewed: Macintosh and PC Emulators; Dac-Easy and STAccounts; 1st Word Plus; Superbase Personal.

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Reviewed: Synth-Droid and Xsyn Patch Editors; Music Studio and Music Construction Set.

SPRING 88

Features: Earthquake; Upgrading Your ST; Dave Mason Interview.
On Disk: Home Budgeting; Exploring Prolog; 1987 Tax Template; Battle for the Throne.
Reviewed: Personal Finance Programs; Desk Accessories Compared.

SPECIAL ISSUE #3

Features: The ABCs of Desktop Publishing; The ST in Business; Business Graphics; Database Overview.
On Disk: CardSTack Database; START Selector; Play the Market.
Reviewed: WordPerfect; F-15 Strike Eagle.

SUMMER 88

Features: Three Years with the ST; Mick Fleetwood Interview.
On Disk: Planning Traveler; Writing Your Own Help Files; Fractal Landscape Generator; Klondike Solitaire.
Reviewed: Microsoft Write.

SPECIAL ISSUE #4

Features: Games & Entertainment
On Disk: Naval Battle; World Discovery; Guitar Simulator; Byte Mechanic; ReSTART.
Reviewed: Dungeon Master; Chessbase; Four SonicFlight Patch Editors; Quantum Paint 1.2.

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JANUARY 89

Features: Editor's Choice.
On Disk: GFA BASIC 2.0; Spanish Mastery, STARTKey Revisited; Slither.
Reviewed: GFA BASIC 3.0; Creator and Notator.

FEBRUARY 89

Features: Thanks for all the Fish; ST: 1999.
On Disk: Dah-Ditter; Moon Calendar; Kamikazee Chess, Killer Chess; VCR Organizer.
Reviewed: Atari's Planetarium; Robtek's Skyplot; Mirage Sample Editor's.

MARCH 89

Features: Three Artists Who Use the ST; Software Rental.
On Disk: Seurat Draw and Paint Program; Assembled Saucers; ST Coloring Book.
Reviewed: Graphics and Animation Programs Compared; Digigram's Big Band; Overview of Six CAD Programs.

APRIL 89

Features: Jimmy Hotz's MIDI Magic; Dr. T Inteview; The New TOS ROM Error Codes.
On Disk: ST Writer Elite 3.0; Poker Solitaire; RAM Baby.
Reviewed: Utilities; R/C Aerochopper; MIDI Draw.

MAY 89

Features: CompuServe's Sports Forum; Atari Goes to College.
On Disk: Space Wars 2400; GFA Object; 1988 Tax Template; SIFT (START's Instant File Translator
Reviewed: Buyer's Guide to Telecommunications Programs; Calamus.

JUNE 89

Features: Do Anything Business Computer; Arcade Addiction.
On Disk: GFA Vector, Match Quiz St; Screen-writing with WordPerfect; ST Pinochle; Exploring Spreadsheets; Traveling Mattes.
Reviewed: Juggler II; Switch/Back; Revolver; Graphics Tool from Migraph; MiDI Drummer.

JULY 89

Features: MIDI in the Future T ense; Making MIDI Affordable
On Disk: Babel; GFA Object; The ST Theremin; START Arcade
Reviewed: Sound Digitizers; EZ-Score Plus; Pagestream; Turbo ST.4; Hi Soft BASIC and Hi Soft BASIC Professional.

AUGUST 89

Features: Secrets of a Good User Interface; Tools of the Trade
On Disk: POGO; File Search; Splines on Splines; Stumbling Blocks
Reviewed: Ultrascript; DevpacST; dBMAN V; After-Market Floppy Disk Drives; MIDI Magic

SEPTEMBER 89

Features: Sam Tramiel Interview; Computer Game Violence
On Disk: Aveeta I: Ebora; The Seven Skulls; Newspeed; Slither Screen Editor; Cinko
Reviewed: Eight Games; Fleet Street Publisher 3.0; STAC, STOS and TaleSpin; NewScore

OCTOBER 89

Features: STACY and Portfolio Preview
On Disk: CAD-3D-to-DynaCADD Converter; Schedule Maker; ST Softguide; WordPerfect Macros; Boingo
Reviewed: DynaCADD 1.56; Hotwire, NeoDesk 2.0 and VDOS ProQueue; Entry-Level Sequencers; Computer Guide to the Solar System

NOVEMBER 89

Features: The Transputer Connection: Atari and Perihelion; Donny Osmond Interview; The START Disk's New Look
On Disk: RezRender; JULIA; Final Approach Controller

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News, Notes & Quotes

BY STEPHEN MORTIMER, START CONTRIBUTING EDITOR

Inside Atari

The 1040 STE has reached North America, but not the United States due to a delay in FCC certification. Unfortunately, some problems tarnish the glow of its memory SIMMs, excellent sound capabilities and extra graphics support. The Control Panel shipped with the STE does not allow access to the extra colors available in the 4,096 color palette. When used with a color monitor, the computer defaults to low resolution automatically. A patch is available that will boot the STE into medium resolution.

John Townsend of Atari provided new insight on the performance of the TT. Using Quick Index 1.4, running in Fast Nibble-Mode RAM with the cache on, the following improvements over the ST were measured:

CPU Memory: 538%
CPU Register: 410%
CPU Divide: 510%
CPU Shifts: 1737%
BIOS Text: 298%
GEM Draw: 403%
GEMDOS I/O: 2,712%.

A 100-percent reading indicates the speed of a standard, unmodified ST. Quick Index can be obtained from the GEnie network or CompuServe for more information on what the tests indicate.

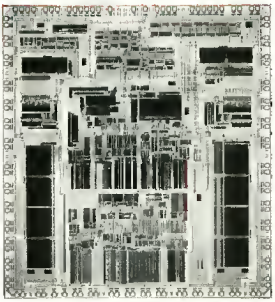
Atari is working on an modular Control Panel that can be extended by adding separate functions called CPXs. XCONTROL will let software vendors expand the functionality of the Control Panel beyond what Atari provides, as well as serving as a graphical front end for TSR utilities. By making it modular, users can select which CPXs they want installed in the system. Examples of possible CPXs are color selectors, keyboard configuration routines, screen saver or printer-driver configuration utilities. A menu of the CPXs loaded into the control panel will be provided the user selection. The modular control panel, similar in function to that of the Macintosh, is still under development at Atari.

Marken Communications will no longer represent Atari as its public-relations firm. Over the period of one year, Marken has been a great help in obtaining information that I have used to write this column. They helped bring great exposure to the products such as Portfolio and Lynx in newspapers, magazines and television. Thanks, Marken, you'll be missed.

On the boxes of STE systems shipped in Canada, there are markings for 1040, 2080 and 4160 systems. Atari has not officially confirmed or denied that these systems will be available in the future. If the 2MB and 4MB versions of the STE are released, Atari will be making a mistake. Since the 1040STE can be expanded to the memory capacity of the higher machines, why produce additional versions? Dealers will profit from having fewer machines that they need to stock and Atari will only have to produce one machine, thus making their production more efficient. We shall see what the outcome of the STE line is in the future.

continued on page 18

Motorola Unveils Microprocessor



Motorola's 68040 32-bit microprocessor was unveiled on January 22 along with the endorsement of many computer companies, including Apple and Commodore. The 040 runs at a speed of 25 MHz and has a 20 million instruction per second (MIPS) capacity, hesting the Intel 80486 by five MIPS. Additionally, it can perform an average of 3.5 million floating-point instructions per second. Built into the microprocessor are two memory management units, an integer unit, floating point unit and instruction caches. The chip is available in a 179-pin package, and is reportedly software compatible with other chips in the 68000 line. Sample quantities are being produced for customers at a price of $795 per chip. Whether Atari plans to use the 68040 chip in any of its products is not yet known.

SUPERCHARGER

BY TALON

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BY TALON

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continued from page 16

(One popular idea for the STE line is for Atari to create a Mega STE. The Mega STE1 would have the capability of expansion through the bus connector and have a detached keyboard. Packaged with 1MB of memory, it could be expanded to 4MB with the addition of SIMM units. Of course, it would have the better sound and graphics found in the 1040STE. If you like the idea of the Mega STE1, let Atari know. Atari Corp., 1196 Borregas Ave., Sunnyvale, CA, 94088-3427, 408/745-2000.)

Fat Bits

• WordPerfect Corporation is now providing around-the-clock support for its popular word processor. The special support line is open from 6 p.m. to 7 a.m. Mountain Standard Time. The number is 801/226-6444.

• NeoDesk 2.05 supports third-party modules that can expand the functionality of the popular replacement desktop. A special programming pipeline allows additional features to be added to the Desktop, such as a trash can that can recover deleted files. The trash can is freeware from Gribnif Software to demonstrate the power of the pipeline. Also, desk accessories can interface with NeoDesk to create unique applications. NeoDesk software calls can be accessed from these desk accessories so that programming can be simplified.

• Japanese firms are planning to cut 1MB DRAM production by up to 15 percent in 1990. Demand has slackened on the chips, driving prices down to about $10 per chip, a far cry from the prices of only years ago when the DRAM shortage existed. NEC, Oki Electric, Hitachi, Mitsubishi and Toshiba all plan to cut production. Recently, the U.S. Memories consortium that planned to make the United States a major player in DRAMs disbanded due to lack of funding. On the bright side of DRAM production, Intel plans to enter the market and Texas Instruments plans to concentrate more heavily on the production of memory chips in the coming years.

• *MicroTimes*, a San Francisco Bay Area computer magazine, recently honored START Contributing Editor Dave Small and Atari Corp. President Sam Tramiel in its "MicroTimes 100," an annual list of men and women who have made outstanding contributions to the computer industry in the past year. Small was chosen for his development of the Spectre GCR Macintosh emulator while Tramiel was noted as the main force behind Atari's new product announcements and rapid expansion in the Australian and European markets. ■

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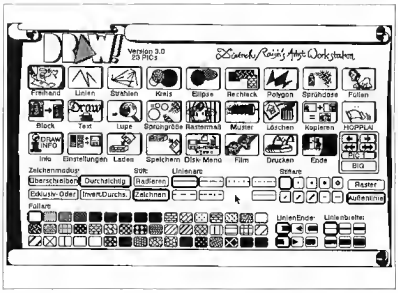
Draw!

If you're only interested in pixel-oriented drawing, version 3.0 of DRAW! (Dietrich Raisin's Artist Workstation) is worth a look. Released by Omikron, this drawing program actually looks very artistic with its main menu laid out on a scroll. The artistic connection is further reinforced as the program closely emulates the way a painter would normally work on other, more conventional media.



DRAW! 3.0, Dietrich Raisin's Artists Workstation.

DRAW! will let you simultaneously work on as many pictures as will fit in available memory. The program also supports the so-called BIG format with 640 x 800 pixels, i.e twice the screen size. To get "the BIG picture" you just simply join two normal pictures. Augmenting the standard drawing tools, the powerful block editing, automatic masking and contract enhancement are particularly well suited for touching up digitized images. The only "drawback" is that DRAW! only works in monochrome and requires a minimum of 1MB of memory.

Omikron is currently taking direct orders but is also looking for a distributor in the United States. (Omikron, Erlach Str., 157534 Birkenfeld 2, West Germany, 7082/50048.) ▸

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Trade Shows

Atari Computer GmbH (Germany) has set the date for the Fourth International Atari show in Dusseldorf, West Germany, for August 24-26. Historically, this exhibition is a major showcase for Atari. Last year, for example, it saw the introduction of the TT and STE.

A couple of other important shows, although not exclusively Atari, may also show a glimpse of things to come. COMDEX Europe will be held in Paris April 23-28. Back in Germany, CEBIT — reportedly the largest computer show in the world — is scheduled for March 20-27 in Hannover.

BASIC Convert

Advanced Application Viczena has announced "GFAlib", a BASIC library to facilitate translation of GFA-BASIC 3.0 programs into SPC-Modula-2. The converted programs should, in most cases, be faster than the previously compiled BASIC versions. Furthermore, using the SWISS window manager, several multitasking GFA graphics can be displayed in the same window.

MusicBase

Voxel Software is about to launch MusicBase, a database for the music industry. Even though it contains only British names, addresses and contacts, it may be very attractive for U.S. bands wishing to make it in Europe. The database can be updated so you can add your favorite local musicians as well. (Voxel Software 1, Hillcrest Court, Shoutt-up Hill, London NW2 3PG, Great Britain, 1/452-1916.) ■

If you have a hot tip let us know at **News, Notes & Quotes, START Magazine, 544 Second Street, San Francisco, CA 94107**

Stay Virus Free

Anti-Virus Kit from G DATA (99 *deutsch marks*; about $60) is one of the most complete virus protection packages available. G DATA provides free updates to existing owners and, since its original release in 1988, AVK has gone through some 20 reincarnations to keep up with new viruses. Currently up to version 3.1, AVK can recognise 19 boot-sector and four link viruses. It will also check all internal ST vectors and can restore various game boot sectors. Hard disks are supported by verification of all eight DMA ports. To top it all off AVK will, if requested, install an accessory on your drive to write protect desired devices. (G DATA, Siemens Str., 164630 Bochum 1, West Germany, 2323/389-858.)

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Who else gives you fast word processing, support for multiple fonts, graphics importation, spell checking and a cornucopia of need'em-when-you-see'em features? Like time, date, and page number variables. Cropping and resizing of graphics. ASCII text import and export and a graphical ruler.

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And when we say Script is fast, we mean it! Script outperforms GEOS based word processors hands-down. Also, Script prints at the highest possible resolution on 9-pin, 24-pin, InkJet, HP and Atari Laser printers.

Then Draw Your Own Conclusions

Sketch is a complete high resolution painting program with a 3D modeler. Create letterheads, logos, illustrations, and a whole lot more! Use the 3D modeler to design an object, then use the paint tools for shading and touch up — no other paint program gives you this. Edit up to 14 screens at a time. Import and export Degas, STad, and scanned images. Tools include line, rectangle, oval, spline, freehand, flood fill, editable brush, patterns, fonts and many more — all faster than a scared neutrino.

Megamax APPLICATION SYSTEMS DALLAS
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Script requires 1Mb and a high resolution monitor.
Sketch requires a high resolution monitor. For more information, or the name of a dealer near you, call Megamax at (214) 699-7400.

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TELECOMM

Getting Started in Telecommunications

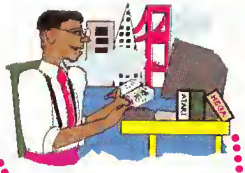
BY JERRY MCBRIDE

Follow Jerry McBride as he unveils the mysteries of the modem and illuminates the simplicity of telecommunications.

Of all the equipment related to home computers , none are so cloaked in mystery as are modems. Born during a dark time in computer history, when terms like "user friendly" hadn't even been dreamt of, modems have often been considered peripherals better left to hackers and computer scientists.

All that has changed — sort of. Modem use is now enjoyed by millions of computer owners and things have certainly gotten easier for the typical user. But because of subtle differences in the way computers communicate over the phone, the home-modem user must deal with a number of special terms and control settings that can often be confusing.

With a little help, however, you'll



Wendy Johnson

UNICATIONS

find that modems are *not* hard to use. The following article will guide you through the cryptic world of telecommunications, covering such oblique subjects as baud rates, Hayes-compatibility, uploading and downloading. Along the way you'll also find out how to choose the modem and modem software that's right for you.

What is a Modem and What is It Good For?

A modem (*mo*dulator/*demo*dulator) is a hardware interface that lets a computer communicate with other computers through telephone lines. This means that you can send and receive all sorts of information — including text, programs and pictures — right at your home computer.

Modems let you retrieve anything from stocks and securities to news reports and information on ST hardware/software. There are even complete magazines that only exist "online." (Editor's Note: *START Magazine accepts submissions via modem. See the end of "Dialog Box" for information on how and where to send it.*)

But that's not all! You can also interact with the world around you. For example, you can make travel reservations, pay many of your bills or buy discounted goods from cameras to automobiles. Professional online services (called bulletin board services or BBSs) provide these kinds of services.

There are also many local BBSs run by computer hobbyists. Local BBSs are operated by people like you and me and do not charge an hourly fee, though some have a one-time or yearly membership fee (ranging from $5 to about $25). You won't find stock quotes or the other exotic capabilities of a professional service but you will find text-based games and many public domain/shareware programs. There are even programs, like MichTron's BBS 3.0, that let you set up your own BBS.

Virtually all BBSs, professional or hobby, provide a service called electronic mail, which lets you exchange messages with the other people on that BBS. You can even correspond with software developers and ST hardware manufacturers. This is a great way to get news, ask questions or receive program-related items (like printer drivers, etc.). ▶

Supra Corporation
1133 Commercial Way
Albany, OR 97321
(503) 967-9075

Supra 2400, $149.95. Fully Hayes compatible, RS-232C Serial Interface, 2400 baud, External.

Supra 2400 Plus, $199.95. Fully Hayes compatible, RS-232C Serial Interface, CCITT, 2400 baud, External, MNP Levels 2-5.

Which Modem Should You Buy?

When modems were first introduced for widespread use, the Hayes Corporation and U.S. Robotics battled for control of the fledgling market. Naturally, each companies' modems were incompatible (each required a different program to run it.)

Hayes eventually won out and today their modems are the defacto standard in the computer industry. Hayes' success (and high prices) soon inspired other companies to make Hayes-compatible modems; units that are identical to the Hayes but at a much lower cost.

Modems for the ST fit into the Hayes mold and all telecommunications programs for the ST are written for Hayes-compatible modems. Therefore, when you buy a modem, make sure that it's 100-percent "Hayes-compatible."

Speed (baud rate) is the next consideration. Modems with baud rates of 300, 1200 and 2400 are most common. Three hundred-baud modems are very slow and are not recommended for serious use. Twelve hundred-baud modems offer serviceable speed at an affordable price (around $90). If you plan to become a modem maniac you should get a 2400-baud modem (for around $170). Most modems let you select any of the slower speeds in case you call a BBS that operates at a slower baud rate.

A brief word concerning 9600-baud modems: steer clear of them. They're still in their formative stages and no single standard has emerged. The incompatibilities with these modems are far more serious than with existing modems. All breeds of 300-, 1200- and 2400-baud modems can talk to one another (as long as you set the faster modem to the slower modem's speed). Different breeds of 9600-baud modems cannot talk to one another at all. This is because each type of 9600-baud modem uses a completely different transmission scheme.

Finally, buy a modem that has a built-in speaker. This is for two reasons: first, the speaker lets you hear if the number you're calling is busy. Otherwise you would have to wait 20 or 30 seconds for the modem to say "call incomplete" or something equally uninformative. Second, you can tell if you've dialed a wrong number. A speaker lets you hear the person on the other end saying "Hello? Hello?" Without the speaker you might try that number five or 10 times, thoroughly terrorizing the answering party.

RJD Assoc./Novation
10885-G Kalama River
Fountain Valley, CA 92708
(714) 841-8791

Parrot 1200, $149. Fully Hayes compatible, RS-232C Serial Interface, 1200 baud, External (Portable).

Parrot 2400, $149. Fully Hayes compatible, RS-232C Serial Interface, CCITT, 2400 baud, External. (Scheduled for release in April 1990).

Hayes Microcomputer Products, Inc.
P.O. Box 105203
Atlanta, GA 30348
(404) 449-8791

Smartmodem 1200, $399. RS-232C Serial Interface, CCITT, 1200 baud, External.

Smartmodem 2400, $499. RS-232C Serial Interface, CCITT, 2400 baud, External.

Smartmodem 9600, $1,999. RS-232C Serial Interface, CCITT, 9600 baud, External.

Software, Hardware, Setup

Which software should you buy? In the May 1989 issue, START ran a comparison of telecommunications programs for the ST. A sidebar following this article offers a brief description and recommendation of the major players in the telecommunications-software field: Flash, Shadow, Interlink ST and ST Talk Professional.

In addition to software, you'll need to buy an RS-232 cable to connect your ST to the modem. When you buy the modem ask the dealer for a cable to go with it. RS-232 cables generally cost around $25. Do not buy a "null modem" cable. This is a special cable specifically

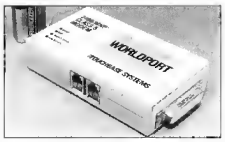
designed to connect two computers in order to transfer information directly from one to the other. It attaches through the RS-232 port but a modem is not necessary.

Now that you've bought a modem, software and a cable, what next? First, connect the modem to your ST using the modem cable (pay attention to the sex of the connector ends; one end is male, the other female). Next, connect a phone line to the proper jack in the back of the modem. Modems have a second jack that you can run to a normal telephone. This lets you use your phone and the modem off the same wall jack.

All modems have a series of small "DIP" switches on the back. Although these switches are usually preset at the factory, read the manual to double-check their proper settings. If the modem has a "VOICE/DATA" button, set it to DATA. Set the modem to the desired speed (300-baud modems only have one speed).

Now, boot your ST and run your telecommunications program. From now on the modem will be invisible to you, since you'll be dealing exclusively with the telecomm program (which in turn tells the modem what to do).

If you accidentally leave your modem on it will always answer the phone and send out a hideous screeching noise. This is rather annoying to anyone who tries to call you. The horrible noise is normal — the modem is trying to make contact with the "calling computer," which in▶



Touchbase
160 Laurel Ave.
Northport, NY 11768
(516) 261-0423

WorldPort 1200, $199. Fully Hayes compatible, RS-232C Serial Interface, CCITT, 1200 baud, External (Portable).

WorldPort 2400, $359. Fully Hayes compatible, RS-232C Serial Interface, CCITT, 2400 baud, External (Portable).

WorldPort 2400/MNP, $499. Fully Hayes compatible, RS-232C Serial Interface, CCITT, 2400 baud, External (Portable), MNP Level 5.

START BOOKSHELF

COMPILED BY AMY H. JOHNSON
START PROGRAMS EDITOR

Want to dive deeper into the world of telecommunications? Here are several guidebooks to lead you through the "information age" maze.

Electronic Communications for Home and Office, Ronald G. Albright, Chilton $16.95

The 1st Primer of Microcomputer Telecommunications, Jim Combron, TAB Books $10.95

Answers Online: Your Guide to Informational Databases, Barbara Newlin, Osborne/McGraw Hill $16.95

The Complete Electronic Bulletin Board Starter Kit, Charles Bowen and David Peyton, Bantam Computer Books $39.95 (with IBM software)

The Complete Handbook of Personal Computer Communications, Alfred Glossbrenner, St. Martin's Press $15.95

The Complete MCI Mail Handbook, Stephen Manes, Bantam Computer Books $22.95

Computer Connection Mysteries Solved, Graham Wideman, Howard W.Sams & Co. $18.95

Dvorak's Guide to PC Telecommunications, John C. Dvorak and Nick Amis, Osborne/McGraw Hill $49.95 (with IBM software)

Guide to Commercial Telecommunications Services, Jeffrey Hsu, Prentice Hall $29.95

How to Get the Most Out of CompuServe, Charles Bowen and David Peyton, Bantam Computer Books $22.95

How to Look It Up Online, Alfred Glossbrenner, St. Martin's Press $15.95

Infomania, Elizabeth M. Ferrorini, Houghton Mifflin Co. $14.95

Kermit: a File Transfer Protocol, Frank da Cruz, Digital Press $30.00

Mastering Serial Communications, Peter W. Gofton, Sybex $19.95

Online Communications Software, Ashley, Fernandez and Ashley, McGraw Hill $27.95

Straight Talk: the Online Conferencing Resource, Charles Bowen and Stewart Schneider, Bantam Computer Books $39.95 (with IBM software)

Telecommuncations Software for the ST

Flash, $29.95. Antic Software, 544 Second Street, San Francisco, CA 94107, 800/234-7001.

Flash is fairly complete telecommunications program, though its user interface is a bit confusing at first. However, once you get the hang of Flash, you'll find it's an excellent program. It is the only program that lets you write script files. A script file is a simple text file into which you have entered a set of commands. For example, a script can call a BBS, log on for you, get stock reports, download files, then log off — automatically!

Shadow, $29.95. Antic Software, 544 Second Street, San Francisco, CA, 94107, 800/234-7001.

Shadow does not have any advanced features like automatic log-on or script files. It's claim to fame is that you can tell it to upload or download file(s) while you use other programs. Shadow can transfer files while you write a memo, use a spreadsheet, etc. Shadow is reset-proof and will reliably finish the job, even if you press the reset button over and over again. Shadow only has VT-52 terminal-emulation mode. This means it is useful on all professional and most hobby 88Ss, but will not work with a number of company mainframe computers.

Interlink ST, $39.95. Intersect Software, 3951 Sawyer Road, Suite 108, Sarasota, FL 34233, 800/826-0130.

Easy to use, Interlink ST has an automatic log-on feature that's so simple a child could use it. Interlink does not have script file capability, but it can "memorize" anything you do and repeat the same steps automatically. Interlink calls memorized steps "recordings." The program also has an automatic timer feature that can run a recording at any predetermined time. You can have it wake up every morning at 4 a.m. and get stock quotes for you, for example.

ST Talk Professional, $39.95. Quantum Microsystems, P.O. Box 179, Liverpool, NY 13088, 315/451-7747.

ST Talk Professional is another telecommunications program that's chock full of features. ST Talk's manual features (text buffer, dialing directory, modem settings) are comprehensive and very easy to use. However, its automated features (automatic log on, automatic operation) require an extremely complicated and, in my experience, unreliable script file language. I do not recommend this program.

this case may be your Aunt Martha.

Also, if you have call waiting, disable it before you use your modem — an incoming call could cause the BBS to drop you. Ask your phone company for the code that disables call waiting. Note that disabling your call waiting is not a one-time procedure. You must shut it off each time you're ready to log on.

Understanding Telecommunications Programs

Telecommunications programs have two main operating modes. In effect, these modes determine whether you're controlling your computer or the BBS.

Capture-buffer mode controls the ST and is usually equipped with easy-to-use drop-down menus. Here you can change modem-related settings, edit the automatic-dial directory or edit text that is in the capture buffer. You cannot communicate with another computer while in this mode.

Terminal mode lets you communicate with the outside world. Once you log on, any text you enter is sent right to the BBS. A handy feature in terminal mode is the status bar, an information read-out at the bottom of the screen that tells you what baud rate is selected, how full the capture

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buffer is and other key pieces of information.

In telecomm programs, such as Flash, you can switch between the capture buffer and the terminal mode by a simple right-click of the mouse button. If you're logged onto a BBS, you can switch to the capture buffer mode if you want. All communications will be suspended temporarily, but the BBS will wait patiently for your return.

Transferring Files (Uplooding and Downlooding)

Telecommunications software allows several methods for moving information from modem to modem. These varying methods are known as *transfer* protocols, and each one has a special function. All transfer protocols (except the ASCII protocol) check for errors in the transmitted data. To spot errors the ST and BBS "compare notes" each time a predetermined amount of data (a "block") has been sent. If a block contains an error, the protocol tells the BBS to send that block again.

Some common transfer protocols include:

Xmodem (CHK or CRC): checks transmitted data accuracy every 128 bytes and is probably the most commonly used transfer protocol. Xmodem is a good choice if your phone lines are noisy (i.e., there's lots of static or other intereference). Sometimes a BBS makes you choose between "Xmodem CHK" and "Xmodem CRC." Always choose "Xmodem CRC" because it's faster.

(If you're uploading or downloading data from CompuServe, "CompuServe B" protocol is recommended over Xmodem.)

Xmodem 1K: also known as Ymodem, it's the same as Xmodem except that it checks for errors in 1K blocks. It's a little faster than ▶

BBSs and Their Costs

The bottom-line to owning a modem is cost. Hobby BBSs are virtually free (unless they're long distance). Professional BBSs have an hourly or flat rate charge. The biggies like CompuServe and GEnie provide a local phone number in most cities. Smaller outfits tend to charge less per hour, but you incur extra costs because they do not provide a local phone number. Fortunately, you're not at the mercy of the phone company, either. Two long-distance services, Tymnet and PC Pursuit, cater exclusively to modem users and are inexpensive.

Like the phone company, most professional BBSs have an expensive prime-time rate and a less-expensive off-hours rate. The cheaper rate also applies on weekends and most holidays. Off-hours usually extend from 6 p.m. to 7 a.m. and cost an average of $12 an hour. Prime-time hours generally run from 7 a.m. to 6 p.m. and cost from $17 to $45 an hour! A notable exception to this rule is CompuServe, which does not charge extra during business hours and has very reasonable rates overall.

For more information, write or call:

CompuServe, 5000 Arlington Centre Blvd., P.O. Box 20212, Columbus, OH 43220, 800/848-8199.

GEnie, 401 N. Washington St., Rockville, MD 20850, 301/942-9001.

Delphi, 3 Blackstone, Cambridge, MA 02139, 617/491-3342.

BIX (Byte Information Exchange), 1 Phoenix Mill Lane, Peterborough, NH 03458, 603/924-7681.

ST/ime $59.95

Lithium 10year battery backed-up clock and calendar module that fits in all the STs. Install it under one TOS ROM chip and all your files will be date and time stamped correctly. Comes with digital corner clock display. Frees up your cartridge port. Stop wasting time setting time! 3yr. warranty.

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Ultra low-profile solderless **520ST/520STfm** 2.5 Meg memory upgrade. Fits under all RF-Shields, including the older 520ST's with external disk-drives. Plug & Play! Comes with 1yr. warranty, detailed manual, Ramdisk software and diagnostics on disk. **$129.95** w/o RAM **$299.95** with RAM

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Solderless **Mega2** RAM upgrade to 4 Meg. Plugs into the back of the Mega2 and will not interfere with internal hard-drives. The easiest way to upgrade your Mega2 without soldering! Comes with complete instructions and diagnostics. **$149.95** without RAM **$319.95** with RAM chips

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520STfm/1040 2.5 to 4 Megabyte Solderless Memory Upgrade Kit

Innovative 3-D double-decker boards fit into the video-shifter metal box of the ST. Memory diagnostics and RAMdisk software included. 1yr. warranty and 30-day money-back guarantee. Super reliable data and ground connections make this the upgrade board for your ST.

0K(no chips)	**$149.95**
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Tel:(213) 408-6715
FAX:(213) 408-6748

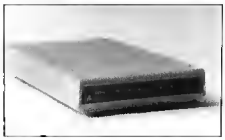
Xmodem, but only if your phone lines aren't noisy.

Ymodem Batch: completely different from Ymodem, lets you download (or upload) a whole group of files automatically.

CompuServe B Protocol: super fast and more reliable than other protocols in that CompuServe does all the work for you. It even tells your ST to start the data transfer.

ASCII: can be used when transferring straight text. It does not check for transmission errors and is therefore faster than other protocols. The ASCII protocol relies on the fact that text can incur an occasional error and still be usable.

On a side note: at the end of a transmission, a BBS will usually display a message such as "Xmodem Transfer Completed, 1 Error(s)." When you see this message don't be alarmed. It's simply telling you that Xmodem



Atari Corporation
1196 Borregas Ave.
Sunnyvale, CA 94086
(408) 745-2000

SX212, $99.95. Fully Hayes compatible, 1200 baud, External, Capacity for 8-bit port.

Basic Telecommunications Terminology

ASCII: An acronym for American Standard Code of Information Interchange, ASCII is a set of standard 8-bit information codes used by most personal computers.

Baud: A unit for measuring data transmission speed. The baud rate tells you how many bits of data the modem can transmit or receive per second.

BBS: Acronym for Bulletin Board Service. A BBS is a computer system that is dedicated to receiving calls from modem users. BBSs are also called "boards."

Buffer: Almost all telecommunications programs can keep a record of your BBS session. All text that appeared on the screen can be stored into a buffer — a portion of your computer's RAM. You can later save the buffer's contents to a disk file. This feature is handy for saving and printing menus and downloading library listings.

Download: When you want to receive a file from a BBS, you tell it to download. The BBS will ask you which file you want and will prepare to send the file.

Duplex: The actual transmission of a file, can either be "full" or "half." Full duplex means that there is data transmission in both directions simultaneously; similar to a phone conversation in which both parties can talk at the same time. Half duplex is data transmission in both directions, but only one direction at a time; similar to a radio conversation in which only one party can talk at a time. Note: When you're online and you notice that the letters you type do not show on the screen, or they show up twice (e.g., jjeerryy mmcc bbrriiddee), simply change the duplex setting.

Lag On/Lag Off: When you call a BBS you must give it certain information such as your name and password. This is called "logging on." When you "Log Off" you are informing the BBS that you want to end your session and hang up.

Modem: Acronym for modulator/demodulator. A modem lets two computers talk to one another over normal telephone lines. In addition to your computer and a modem, you must have a telecommunications program that knows how to control the modem.

Online: When your ST is presently in communication with the BBS.

RS-232: This is the serial data port that connects your ST to the modem. An RS-232 cable is necessary to make this connection.

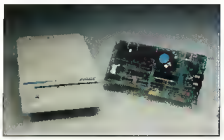
Terminal Emulation Modes: You may have seen such terms as VT-52, VT-100, or Viditex mentioned before. These terminal-emulation modes (TEMs) determine the "mode of speech" between two computers when a file transfer is occurring. All BBSs use VT-52 and all telecom programs for the ST automatically woke up using VT-52 (which means you don't have to worry about TEMs). Terminal emulation modes are necessary to communicate with corporate mainframe computers of various types.

Proposed FCC Surcharge

False rumors spread through several bulletin boards this winter warning of an impending surcharge on data lines that would hike rates on services such as Tymnet and CompuServe. The Federal Communications Commission, the agency which regulates phone line usage, is not considering any such action, said spokesperson Rosemary Kimball.

Ever since the breakup of AT&T, consumers have been charged a fee to access the public telephone network. Telecommunications companies that provide customers with enhanced services received a waiver in 1984 exempting them from paying the surtax, Kimball said. In 1987 a proposal to eliminate that waiver was dropped after a storm of protest from users.

caught an error and had that portion transmitted again. Transfer protocols make it virtually impossible to receive bad data during a download.



Everex
48431 Milmont Dr.
Freemont, CA 94538
(415) 498-1111

Evercom 24E, $249. Fully Hayes compatible, RS-232 Serial Interface, 2400 baud, External.

Evercom 24E+, $299. Fully Hayes compatible, RS-232 Serial Interface, 2400 baud, External, MNP 5.

EverFax 24/96E, $499. Fully Hayes compatible, RS-232 Serial Interface, 2400 baud, External, MNP 5, 9600bps Fax Modem.

Just a Rumor

The opponent cause of this current rumor is a misunderstanding about FCC docket 89-79. According to Kimball, this docket restates the FCC's policy of granting on indefinite waiver to on- line service providers. There is no proposal before the FCC to lift that waiver, Kimball said; the messages sprouting on bulletin boards are wrong.

The misinformation about FCC 89-79 spread far and fast through the electronic networks. Kimball reported a flurry of phone calls at the beginning of the year seeking to confirm the story. User newsletters published addresses for the FCC Chairman and congressional subcommittees, urging their readers to write them.

—Amy H. Johnson, START Programs Editor

Company Calls

People in management or research positions often want to call their company mainframe from home. Many of these computers require your ST have off-beat "terminal emulation modes" (see the glossary sidebar). If you fit into this category make sure the telecommunications program you buy has the proper terminal emulation mode.

Conclusion

Alone, the ST is a powerful machine. With a modem, it's even more powerful. Considering the thousands of wonderful things you can do online, a modem is more than worth the investment. ■

Jerry McBride is a technical writer for Hewlett-Packard. He lives in Robnert Park, Calif.

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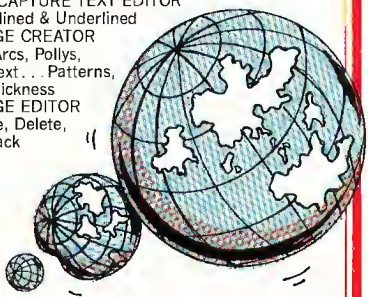

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The 11 rookies had never before endured anything like the aural assault that now surrounded them. The staccato burst of close-range gunfire from an M14 rattled the greenhorns to their bones. A Huey attack chopper — one of ours — whirred overhead with a deafening roar, but something was clearly wrong. A whiny screech coming from the chopper indicated danger and the Huey disappeared behind a row of trees. "Mayday! Mayday!" came the report from the pilot's radio, then his panicked dispatch was abruptly replaced by the hiss of

"Born on the Fourth of July," starring Tom Cruise (left), was nominated for an Oscar for Best Picture. Scott Gershin (above) built the soundtrack using a MegaST and the ADAP II sound system.

static. A gut-wrenching explosion was chased by the crackle of flames from behind the trees and he was down. The cacophony of war was everywhere. The leader turned to one of the group and smiled. "Welcome to NAMM, kid."

Southeast Asia? Guess again. NAMM is the National Association of Music Merchants' semi-annual trade show, and the battle sounds were from the soundtrack of Oliver Stone's Academy Award nominated "Born on the Fourth of July," starring Tom Cruise. Sound editor Scott Martin Gershin, who received an Emmy nomination for his work on "Beauty and the Beast," created the richly textured movie soundtrack virtually from scratch using a Mega and Hybrid Arts' ADAP II sound-manipulation system. The end result is a motion-picture experience that puts the viewer directly into the midst of battle. At the NAMM show, Gershin was on hand in the Atari booth to give demonstrations of his work.

Before the value and utility of the Mega-based system can be appreciated, it is first necessary to understand the challenge of motion picture sound editing. With most movies, particularly those shot on location (rather than on a soundproof set), the sound recorded during filming is of limited use. During the demonstration, Gershin showed a clip from "Born on the Fourth of July" as it appeared before any serious sound work was done.

In the "before" sequence, the visual editing was tight and, as would be expected from an Oliver Stone film, the cinematography and direction were superb. Yet the scene still felt disjointed and strange. There was no helicopter, no voices on the radio, no roar to accompany the explosion. The shots from Tom Cruise's gun were out of synchronization and muffled; background ▸

WHAT DOES HOLLYWOOD KNOW ABOUT ATARI?

Sound Designing with the Mega and ADAP II Sound System

BY MICHAEL R. PERRY

Emmy nominated (Beauty and the Beast) sound editor Scott Gershin is making famous Atari's Mega and Hybrid Arts' ADAP II. His latest use of this equipment was for the new Oliver Stone film, "Born on the Fourth of July," starring Tom Cruise. START sent contributor Michael R. Perry to talk with Gershin about his amazing work.

Gershin created totally new sounds for "Honey I Shrunk the Kids," (above) including insect voices. A bee terrorizes one of the shrunken kids (right).

noises came and went randomly, including an inappropriate hum from a fan that was used to blow dust during filming; and Cruise's dialogue was barely audible.

Gershin stopped the videotape. "As you can hear, there were significant problems with the original sound," he said, smiling. "Actually, we got rid of all of it." Incredible as it may sound, Gershin chose to *throw away* the sound recorded during production and begin again from scratch, building up the audio one sound effect at a time, "everything from the crickets to the helicopters."

Motion-Picture Sound Editing

Gershin's dilemma was not unique, as often as not the sound recorded on location is useful only as a reference. The old-fashioned way to build a soundtrack required miles of magnetic tape, the diligence of an assembly line worker and the patience of a saint. Choosing a sound required threading up magnetic tapes and playing them one at a time to find the right effect. Each chosen sound had to be transferred to magnetic film (35-mm film coated with magnetic oxide), and painstakingly spliced into bulky reels, each reel containing one track of sound. Twenty-four tracks generated 24 reels of magnetic film.

If a gunshot was needed 100 times, it had to be transferred to magnetic film and spliced 100 times. The difficulty was aggravated by the

The Mega and ADAP II have taken Hollywood by storm.

fact that sound editing is one of the last processes in film production. When the release date is fixed and filming goes two weeks over schedule, the sound editor might have two weeks less to complete his task.

As a result, the sound editor's life seems to consist of one stressful deadline after another. "Sleep is for Sissies" reads the graffiti in one post-production company's bathroom. The time to experiment and try new approaches was a rare luxury; getting the job done on time was often all a

sound editor hoped to do.

The profession of sound editing was ready for some changes. Hollywood has been described as a continual struggle between artists and businessmen. The sound editors, as artists, desired tools that would let them work faster and thus have more time for experimentation, creativity and the pursuit of excellence. The producers, being businessmen, were constantly looking for ways to do things cheaper and more efficiently. The ADAP II is the rare commodity that can please both the artist and businessman.

The ADAP II System and How It wos Used

ADAP is an abbreviation for Analog Digital Audio Processor. Although ADAP was originally developed for music studios, sound editors and others in the movie post-production business saw the possibilities of this powerful tool and Hybrid Arts responded with ADAP II.

Hybrid Arts describes the ADAP II as "the direct-to-hard-disk digital recorder and editor." Gershin cuts through the hype and simply calls it "a word processor for audio." ADAP II takes over much of the grueling, repetitive work of sound editing without compromising creativity.

For "Born on the Fourth of July," Gershin used many of the capabilities of the system. To begin with, rather than record sounds on tape, ADAP II digitizes sounds and stores them as files on the Mega, available instantly at the click of a mouse. "On Fourth of July, we had over 300 gunshot sounds," Gershin explained. "If Oliver Stone wanted to hear something, I could click the mouse and play him any of them, instead of threading up magnetic tapes. If he liked a particular gunshot, I could add it to a track right then and there."

For the battle scene described above, sound effects had to be added one at a time. Depending on the sequence, there may be dozens of sounds playing simultaneously. "Building tracks" is the process of finding appropriate sound effects for each event and synchronizing them to a picture.

An ADAP II setup provides a convenient and intuitive way to build tracks. The edited picture portion of the movie is dubbed to videotape and SMPTE code is recorded on the videocassette. SMPTE stands for Society of Motion Picture and Television Engineers; professionals pronounce it "simpty." SMPTE code is to video and film what ASCII is to computers: an industry standard that provides a common reference. Simply put, SMPTE code assigns a unique number to every picture frame of a videotape, 30 frames a second.

A minimal ADAP II sound-editing suite has a videotape player, a Mega equipped with the ADAP II software and hardware, and a multitrack recorder. When the videotape is played, the SMPTE time code is read by the ADAP II system and the multitrack recorder and everything stays in synchronization.

The videotape that carries SMPTE code is the master telling all other machines where they should be; the multitrack recorder and the ADAP II are slaves marching in step with the video.

Gershin's studio is much more complete: he has two Mega 4s, rack mounted with color monitors; two fully configured ADAP II systems; a 380MB hard drive; a 77MB hard drive; a Megafile-44, 44MB removable hard drive; an ICD 154MB tape backup; a 24-track Dolby SR machine; a full theatrical speaker system; a digital audio tape deck; and "eight MIDI keyboards and a couple dozen signal processors," he boasts. It may sound like the Starship Enterprise, but all the equipment is used heavily and constantly.

To build tracks, the editor simply brings up the ADAP II "cue sheet" screen on his Mega monitor and plays the videotape. On the ST is a screen showing four columns: sound start, sound stop, a column for the ▶

file name of each sound effect and a column for comments. At each point where a sound effect is desired, the editor can notate the estimated starting point for the effect with the click of a mouse. Then, he can listen to various effects that are stored on the hard drive, until he finds the one that's best. The sound can be synchronized to the picture, and the picture and sound played back to check. If an adjustment is needed, moving the sound forward or back or replacing it is intuitive and very fast.

With this system, an experienced editor can find and place effects much faster than with old-fashioned magnetic film, scissors and splicing tape. The Mega/ADAP II can digitally store two tracks in its memory. When the two tracks are full, the editor copies them to the multitrack recorder and begins building two more. SMPTE code and black boxes keep the ADAP II, the videotape and the multitrack recorder in synchronization. A motion picture may have 50 or more sound-effects tracks, all of which can be created with the ADAP II, two at a time.

Ron Kovic (above, left) is the Vietnam veteran whose autobiography, "Born on the Fourth of July," was made into the movie of the same name by director Oliver Stone (above, right). Tom Cruise (below) was nominated for a Best Actor Oscar for his portrayal of Kovic.

On "Born on the Fourth of July," the agility and speed of using the ADAP II to build tracks gave Gershin a luxury enjoyed by few sound editors: the ability to experiment. After the rough cut described above, but before the movie was finished, the producers requested a "temp dub," which is essentially a quick-and-dirty temporary soundtrack used for intermediate purposes like studio screenings.

Ordinarily a temp dub is not very polished and contains only the bare minimum sound needed to tell a story. For "Fourth of July," though, Gershin wanted to try out some slightly different approaches and created a much fuller sound mosaic than was required for the temp dub, using the extra time that the ADAP II system gave him. "The best way to do something new is to just do it, and not waste time talking about it," Gershin said. "Rather than talk about my ideas for the sound, I was able to demonstrate them in a relatively complete state at the temp dub." His artistic decisions were solid and director Oliver Stone was favorably impressed.

After the temp dub, Gershin buckled down for the long haul and added the many layers of sound that give "Born on the Fourth of July" its visceral impact. "At the end of the show, we had five gigabytes of sound, as well as five 24-track tapes

continued on page 36

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continued from page 34

per reel, for 16 reels. I wore two runners out just hauling tape." At the NAMM demo, Gershin showed what a sequence looked like finished. The battle came alive, thanks to Gershin's sound effects, the John Williams score and the efforts of other post-production craftspeople.

Willem Dafoe (left) and Cruise (right) in a scene from "Born on the Fourth of July."

Other Projects

War movies may require explosions, gunfire and helicopter sounds, but the real challenge to a sound editor is when a movie requires sounds that no one has ever heard. That's what happened to Gershin on Disney's "Honey I Shrunk The Kids."

"There were giant ants in that movie, but no one seemed to know just what they should sound like," Gershin said. "I said, 'just don't ask any questions and give me a couple days.' I went into a room and recorded my own voice, but ran it through a bunch of sound filters. I made four different versions: a silly ant, an angry ant, a happy ant and a normal ant." Using the speed of the ADAP II, Gershin cut together all four versions in just a few days. In the past such a luxury of options would have been unheard of on all but the most expensive movies.

A new feature offered for the ST that has made a buzz in the movie post-production business is the 44MB removable hard drive. Since digitally sampled sound eats up memory, ADAP II users fill up hard drives like everyone else fills up floppies. "The 44MB removable drive is very

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exciting," Gershin said. "It means you can carry around four minutes of digital stereo sound. For example, suppose you had a one-minute jingle for a commercial. You could have the digitally sampled stereo jingle, as well as a 45-second, 30-second and 15-second version, and all the sequenced tracks and the software to play them back on a single disk in your briefcase." Building tracks using digital audio is faster; the sound quality is better than or equal to anything currently available; and it saves money and lets artists try new ideas. What more could people ask for?

Standardization. Besides the ADAP II, there are other (mostly more expensive) digital audio systems and each stores sounds in similar, yet incompatible, ways. Gershin hopes to bring manufacturers together to create an industry standard, similar to the MIDI standard or the CD-ROM standards.

Additionally, Hybrid Arts hopes to release an upgrade soon that will let sounds sampled on Digital Audio Tape (DAT) be digitally transferred into the ADAP II. The ability to digitally record four tracks is in the distant future and they are also working on "compression" capabilities, i.e., the ability to speed up or slow down sounds without changing the pitch. Compression would be useful to turn a one-minute, 10-second song into a one-minute song without changing its key.

But even in its current state, the ADAP II/Mega system is turning up in more and more post-production houses. Like other industries, the motion-picture business has a few leaders and many who just keep their heads above water. New products are introduced all the time, but most fall by the wayside — if it's not any better, no one wants it. Two of the best sound companies in Los Angeles have a large installed base of ADAP IIs. One company set up 10 stations based on the ADAP II. Movies as diverse as "Born on the Fourth of July," "Steel Magnolias," "National Lampoon's Christmas Vacation" and "Honey, I Shrunk The Kids" have used the ADAP II, as well as television shows like "MacGyver," "Beauty and the Beast" and "Murder She Wrote." Thanks to the elegant design of the ST and the hard work of the Hybrid Arts developers, the Mega and ADAP II have taken Hollywood by storm. And they're here to stay. ■

Michael R. Perry is head of CU Productions in Hollywood where he has produced over 100 music and industrial videos. He is also a freelance writer who has published numerous magazine articles including "Screen Writing with WordPerfect on the ST" in the June 1989 issue of START.

A further development

Prospero Pascal and Fortran for GEM have long been established as standard programming environments for professional developers using the ST. Prospero C is also gaining wide acceptance as the first ANSI conforming C compiler for the ST.

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The Prospero Developers Toolkit costs just $US 96. For further details of this or other Prospero products, phone or write to the address below.

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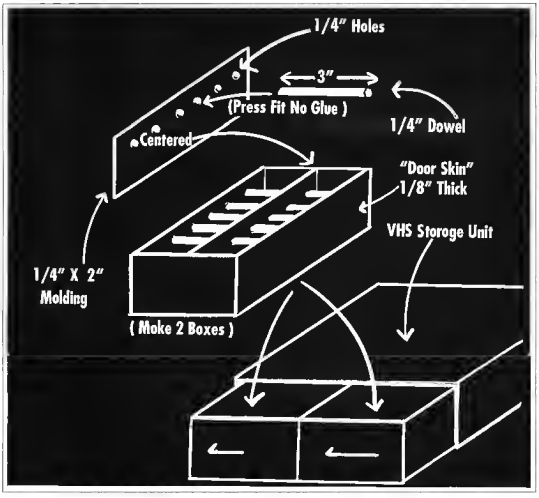
BY JOHN DAMIANO



Beset by mercilessly marauding memory, our hero survives using ingenuity, a few bucks and some sacrificial file folders.

It started out subtly. I first noticed them lounging innocently in the corner. Before long they were sitting on top of the monitors and printers, eyeing my last six square inches of available desk space, watching me as I typed. The Night of the Overflowing Disk Storage Boxes had begun.

Between hard disk backups, copies of software and public-domain downloads, floppies proliferate like rabbits. What starts out as a few boxes of newly purchased blank disks soon turns into a couple of 25-unit holders. Then after a while, a 100-disk holder hogs your desk and all those little boxes are still full! But I finally solved the problem. Now I have inexpensive, large-scale storage with quick and easy access to every disk.

My Primory Weopon

While shopping with my wife I noticed a nice-looking storage unit for VHS tapes that cost less than $10. Possibilities sprang to mind. One of these simulated-walnut beauties would hold every 3-1/2 inch disk I would ever have! So I bought two — just *in case*. It took a little work to configure them correctly, but it was worth it. I now keep all my disks in one place, with all ▶

the related floppies together.

The trick is to make a drawer that fits inside the tape holder's drawer. You can use almost anything to make it: poster board, wood, plexiglass — anything. I chose a durable wood product called door skin. I must warn you that door skin comes in 4x8-foot sheets, which makes enough drawers for your whole computer club.

You can make it out of almost anything.

The Basic Features

Measure the inside dimensions of the VHS drawer. The bottom of the VHS drawer is divided into slots for tapes. Your inside drawer will sit upon these, so measure its height from the top of the slots. Each VHS storage unit has two drawers, so cut out two sets of the five pieces (four sides and a bottom) needed for each inside drawer. Glue the pieces together and sand, if necessary.

Each drawer you make will hold two rows of disks. I added a center divider to separate the rows. You can use scrap molding or make it out of the same material you used for your inside drawer. Whatever you chose, be sure that it is thin enough so that each half is at least 3-5/8 inch wide.

The Chic Flourishes

You can get fancy with the center divider, adding cross bracing to divide each row into smaller sections. This prevents an unfilled row of disks from falling over. Or, like me, you can take the easy way out and cut up some foam packing to shove behind the short row. When the disks increase (they never decrease) I just trim the foam.

For my next refinement, I brutally sacrificed some manila file folders to make dividing labels. Cut them 3-1/2 inches wide by four inches tall; the extra height gives you room to write at the top.

Attack!

Armed with my new weapon, I attacked my overflowing disk storage boxes. I sorted, inserted and labeled. Soon I had conquered them; 300 disks were subdued and organized for less than $12. I can reach into my storage unit and find any disk in seconds.

Oh, if anyone is interested, I have a lot of little-bitty disk boxes for sale cheap. ■

John Damiano runs his Fresno, Calif., avionics business with the help of his 1040ST. He lives with his wife, two children and a home-based ST.

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CRITICAL PATH

Schwane Brings Project Management Software to the ST

BY DAVID PLOTKIN, START CONTRIBUTING EDITOR

When the center span of the of the Oakland Bay Bridge collapsed during the 7.1 earthquake that shook the San Francisco Bay Area on October 17 of last year, the question that people asked almost before the dust settled was, "How soon will it be fixed?" Estimates ranged from three days to months and months, and it became painfully obvious that the California Department of Transportation really didn't know how long it would take.

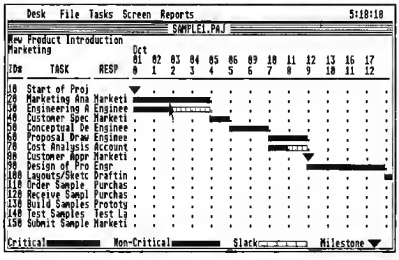
Then a private firm stepped in to analyze the task of repairing the main artery between San Francisco and the East Bay. They talked with engineers and determined exactly what tasks had to be accomplished, the order in which they must be done, which tasks could be accomplished simultaneously and which tasks could not be started until others were finished. They estimated the duration of each task, based on the resources (people and machines) available. And they came out with an astounding estimate: one month. They ended up being accurate to within a day.

Schwane's Critical Path

The science (art?) of estimating the time and resources necessary to complete a task is called "project management." Some very high-powered (and complex) pieces of software have been developed to help project managers do their job, and as an engineer for Chevron, I've used some of them. In general, this software has only been available on PC-compatibles and costs hundreds of dollars. Now Schwane software has released Critical Path, purported to bring project-management software to the ST. Unfortunately, not only does it fall short in a number of important areas, but it is somewhat clumsy to use even within its limited scope.

Critical Path first lets you name your project and determine what time unit you'll use to measure the project progress: days, weeks or months. If you select days, you can determine which days of the week are work days, but that's all the flexibility you get. You cannot allow for holidays (especially important at the end of the year), nor can you have one set of work days during part of the project, then switch in the middle to another set of workdays (because, for example, you find you're getting behind).

Once you select your unit of time, you're locked into it. You can change ▶



Schwane Software's Critical Path is an excellent tool for drawing Gantt charts — vital aids in the world of project management.

it later, but your tasks aren't recalculated. A task that takes three units, for instance, is now shown as taking three weeks instead of three days.

Next comes defining the tasks themselves. Select the menu item to add a task. This calls up a dialog box that lets you name the task, set the responsible department, duration and a predecessor. A predecessor is any task that must be completed before the current task can begin. You must also give the task an ID number.

Critical Path has two limitations that must be discussed here. The first is that the tasks must be executed in ID number order. Thus, it's a good idea to number your tasks in increments (i.e., 10, 20, 30, etc.) so that tasks can be inserted between the tasks you have already set up. If you find that you need to insert more tasks than you have free ID numbers, too bad — there's no renumbering facility. The second limitation is that you can have only five predecessors for any task. On even a medium-size project, this is simply not enough.

Critical Path purports to bring project-management software to the ST.

Critical Path lets you to modify or insert a task. When you insert a task, its predecessor(s) become those of the next numbered task, while the inserted task becomes a predecessor of the next numbered task. This is a little confusing, especially when you work with multiple predecessors.

The Gantt Chart

As tasks are set up in Critical Path, they're drawn on the screen as a Gantt chart, one of the standard tools for project management. Milestones (tasks with zero duration that indicate some important point in the project) are shown as inverted triangles, while tasks with non-zero duration are shown in one of three ways. Tasks that delay the finish date of the entire project if they're late are on what is called the "critical path" and are shown in red (on a color monitor). Noncritical tasks are shown in green and their slack time (amount of extra time before they impact the completion date) is shown in black. The project information can be saved at any time.

Critical Path's clumsiness shows when the Gantt chart outgrows the screen. At that point, you must either choose a menu item or keyboard equivalent to scroll the screen in the chosen direction by a specified number of time units. No use is made of GEM's scroll bars. Further, you can't use the mouse pointer to select a task (e.g., for modification). Instead, you must activate a menu item, then type in the ID number of the task you want. Further, if you delete a task, you must manually delete it from any other tasks that reference it as a predecessor.

Final Thoughts and Recommendations

It's difficult to call Critical Path true project-management software. It can't allocate resources to estimate task duration and it can't do "resource leveling." Resource leveling projects the number of resources (typically, people) required to carry out the simultaneous jobs you have scheduled. You may find that although you can carry on eight tasks at the same time, you don't have enough people to pull it off. With resource leveling, you can adjust the schedule to the level of your resources. Of course, resource leveling may move some tasks onto the critical path that weren't there before. Critical Path has no facility to schedule resources and even if it did, you can't change the order of tasks because of the ID-number restriction.

Critical Path really is just a simple tool to help you draw Gantt charts. It's easy to use, but not very powerful. For example, when printing the Gantt chart, it uses symbols (x, -, >) to represent critical path, noncritical and slack tasks — you can't do true graphic printouts (GDOS or otherwise) of the chart.

If you need help drawing Gantt charts, give Critical Path a try. But before you do, check the public domain where you'll probably find a number of programs that do as good a job. ■

PRODUCTS MENTIONED

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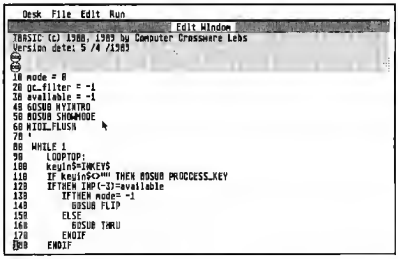
DR. T'S T-BASIC

BASIC Programming With A MIDI Twist

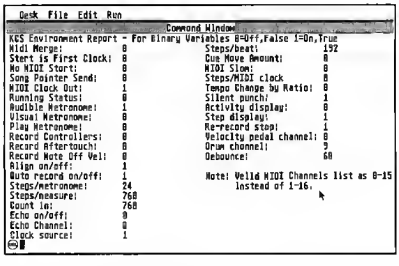
BY STEVE JOHNS

The current crop of sequencing programs for the ST are solid, complex and powerful second-generation products that provide MIDI recording/editing environments of great utility and, in some cases, even elegance. Each is like a personal work of art, illuminating the creative intelligence of its particular designer — but therein also lies a limitation. However bold its conception or comprehensive its features, you could never get more out of the program than the package itself (or its latest upgrade) delivered.

Until now.



The T-BASIC Edit Window here shows the source code.



Here is on exemple of output of the ENVIRON.BAS progrom.

Dr. T's T-BASIC

T-BASIC is the first programming language for the ST designed specifically to interface with a high-end MIDI sequencer. It's a superset of ST BASIC and runs either as a stand-alone program or under Dr. T's Multi-Programming Environment (MPE). In addition to the standard repetoire of BASIC statements and functions, including calls to the GEM AES and VDI, it provides command and data-structure access to Dr. T's popular Keyboard Controlled Sequencer (KCS) and sequence data files created by it. The manual shows you how to adapt standard BASIC programs to run under T-BASIC.

The Good

T-BASIC provides key words and library routines that let you interact directly with the ST MIDI ports and memory-resident KCS sequences. This is a first — no other ST sequencer developer provides a programming interface to its sequencer's internal data. (Jim Miller provides LISP for his Personal ▶

Composer program, but that program is only for IBM computers.)

A KCS sequence is a list of "events." Each event consists of several parameters designated as: time, type, note, velocity and duration. The actual function of note, velocity and duration depends upon the type of event. Each one of these parameters in every sequence can be set or read by a T-BASIC call. You may also add events to a sequence and play a sequence from within T-BASIC. Note that setting or reading the time is a library function rather than a key word. The difference is that to use library functions you must first use the editor to include their text in your program source code. This is not necessary for key words, which T-BASIC recognized automatically. One other obviously missing key-word function is event copy. You'll have to code this yourself and include it when you need it.

To illustrate one of the many uses of T-BASIC, I've written a short program for KCS users (see sidebar). It displays all of the documented KCS environment variables on a single screen. The T-BASIC manual documents the way to read these variables. This program will save you from having to code your own environment display.

The KCS Environment Display

```
CLS
print "KCS Environment Report - For Binary Variables 0=Off,False 1=On,True"
print "Midi Merge:                                    ";: print peekb(envptr+0)
print "Start is First Clock:                          ";: print peekb(envptr+1)
print "No MIDI Start:                                 ";: print peekb(envptr+2)
print "Song Pointer Send:                             ";: print peekb(envptr+3)
print "MIDI Clock Out:                                ";: print peekb(envptr+4)
print "Running Status:                                ";: print peekb(envptr+5)
print "Audible Metronome:                             ";: print peekb(envptr+7)
print "Visual Metronome:                              ";: print peekb(envptr+8)
print "Play Metronome:                                ";: print peekb(envptr+9)
print "Record Controllers:                            ";: print peekb(envptr+10)
print "Record Aftertouch:                             ";: print peekb(envptr+11)
print "Record Note Off Vel:                           ";: print peekb(envptr+12)
print "Align on/off:                                  ";: print peekb(envptr+13)
print "Auto record on/off:                            ";: print peekb(envptr+14)
print "Steps/metronome:                               ";: print peekb(envptr+15)
print "Steps/measure:                                 ";: print peek(envptr+16)
print "Count in:                                      ";: print peek(envptr+18)
print "Echo on/off:                                   ";: print peekb(envptr+20)
print "Echo Channel:                                  ";: print peekb(envptr+21)
print "Clock source:                                  ";: print peekb(envptr+22)
gotoxy 40,1 : print "Steps/beat:                      ";: print peek(envptr+28);
gotoxy 40,2 : print "Cue Move Amount:                 ";: print peek(envptr+30);
gotoxy 40,3 : print "MIDI Slow:                      ";: print peek(envptr+32);
gotoxy 40,4 : print "Steps/MIDI clock                ";: print peekb(envptr+34);
gotoxy 40,5 : print "Tempo Change by Ratio:          ";: print peekb(envptr+35)
gotoxy 40,6 : print "Silent punch:                   ";: print peekb(envptr+36)
gotoxy 40,7 : print "Activity display:               ";: print peekb(envptr+37)
gotoxy 40,8 : print "Step display:                  ";: print peekb(envptr+38)
gotoxy 40,9 : print "Re-record stop:                 ";: print peekb(envptr+39)
gotoxy 40,10 : print "Velocity pedal channel:        ";: print peekb(envptr+40)
gotoxy 40,11 : print "Drum channel:                  ";: print peekb(envptr+41)
gotoxy 40,12 : print "Debounce:                      ";: print peek(envptr+42)
gotoxy 40,14 : print "Note: Valid MIDI Channels list as 0-15"
gotoxy 40,15 : print "      instead of 1-16."
gotoxy 0,25
```

Sample program written in T-BASIC

The Bad

The T-BASIC package includes the manual, program disks, several libraries of BASIC subroutines for MIDI and example programs for both MIDI and non-MIDI applications. The language disk uses key disk copy protection and runs on all ST/Mega models and monitors. The manual covers all of T-BASIC's keywords and library functions, including the special ones for MIDI. Manual entries are ordered by command functional group, with an overall alphabetical list provided for reference (personally, I think the opposite arrangement is easier to work with). The manual includes a table of contents and an index, but lacks a tutorial and ASCII and MIDI specification charts.

T-BASIC is an interpreted BASIC. You type in your program as a text file. When you go to run the program, T-BASIC executes it line by line. There are two operating modes: edit and command line. Most of what a MIDI user will probably want to do with T-BASIC will not involve a sophisticated graphical interface. This is fortunate, since the most useful GEM function for simple user interaction and messages is the dialog function, which crashed my programs every time I tried to use it. Until this problem is fixed, I'd ignore the GEM features of T-BASIC and

stick to traditional BASIC statements like PRINT, INPUT and so forth. By doing so you'll get satisfactory, if less than artful, results. There is no compiler to create stand-alone versions of your programs.
A few of the provided sample programs contained syntax errors and did not run. There is no on-line help available in T-BASIC — the Help key does nothing.

The T-BASIC text editor lacks several essential features. When you go from the command-line mode to the edit mode the editor does not come up in a full-screen configuration. Instead, you must use the arrow keys to manually scroll up and down to fill the screen with your program text. There are no search and replace functions nor does the tab key work.

When T-BASIC detects a syntax error it places an asterisk next to the line number. This requires you to not only fix the syntax error but also manually delete the asterisk flag. Text blocks may be defined by command keys but not through the more intuitive means of dragging the mouse. You cannot open more than one window, preventing easy cut/copy/paste from one program file into another, though you can append an entire file to another. Attempting to insert a new line between two already sequentially numbered lines causes T-BASIC to drop back to command-line mode without displaying the command-mode prompt to let you know where you are.

I honestly have to say that T-BASIC's "basic" editor hampered me at every turn. Doubtless several kilobytes of memory were saved by not implementing many editor features. The program would be much nicer if the features were provided and the choice of disabling them to save memory were left to the user.

Recommendotions

I hope I've given you a good idea of some of the things you can do — and not do — with T-BASIC. If you know standard BASIC and are looking for a way to do some MIDI programming without having to write a lot of low-level code, T-BASIC may meet your needs, especially if you own KCS. If you're already a programmer and are used to a sophisticated editor you may feel a bit cramped in the T-BASIC environment. In any case, T-BASIC is the only game in town when it comes to letting a user program an ST in conjunction with an existing commercial sequencer. ■

PRODUCTS MENTIONED

T-BASIC, $149 Dr. T's Music Software, 220 Boyleston Street, Suite 306, Chestnut Hill, MA 02167, (617) 244-6954.

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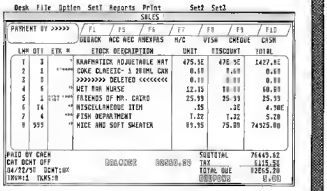

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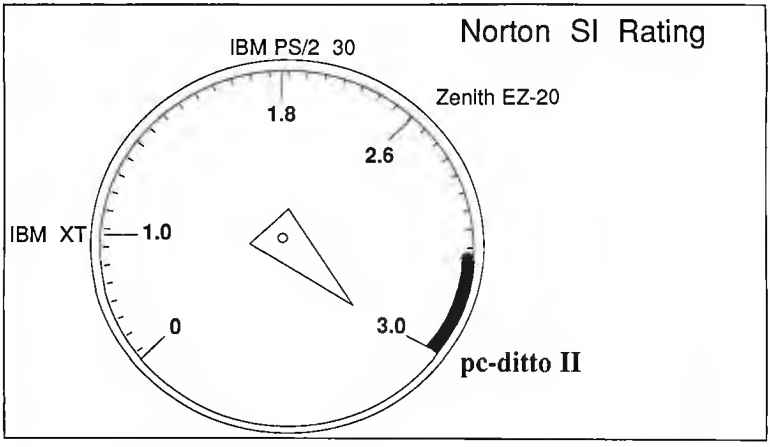

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VIDI ST REAL-TIME FRAME GRABBER

Video Digitizer for the ST

BY JOHN NAGY

Lights — camera ← and finally, *action!* If you're like many ST users, you've wanted to capture live or videotape action as digitized screens on your computer. A number of devices have been produced for this purpose and several can give excellent results. But most share a single major drawback: clear pictures require long motionless exposures of seven to 60 seconds. The smallest vibrations can destroy a good shot. And almost no VCR "freeze frame" is up to the job.

Enter the Vidi-ST Real-Time Frame Grabber from ROMBO Productions of Scotland. Now true, instantaneous captures of the fastest moving subjects are possible on any ST or Mega. Captured shots are dramatically clear and black-and-white pictures are shaded in 16 tones or colors in low resolution. Best of all, a series of pictures can be collected at once (at up to 15 frames per second, half of the 30 pictures actually presented each second in standard U.S. television). The number of images that can be held at once varies with memory, from seven on a 520ST up to well over 100 in 4MB machine. The series can be saved and merged into a live-action animation or individual pictures can be saved in DEGAS or Neochrome format. A host of editing and printing features round out the software supplied with VIDI-ST.

The hardware unit itself is an unassuming black box that plugs into the ST's cartridge port. It is larger than most cartridges, making it necessary to remove MIDI cables if you have any hooked up. The box itself sports a single knob (a contrast control), a phono-type jack for the video input and a pair of recessed controls (synchronization and brightness range).

Using Vidi-ST

Vidi-ST is a snap to use. You can see every frame instantly as it is grabbed, in a flowing on-screen animation. A video camera is *not* required, since you are able to use any VCR and even some modem television sets as a video source. The included software is quite easy to learn, offering most commands both from drop-down menu bars and from mouse-click boxes along the screen bottom. The miniature manual should be read, though, since some of the controls (like the synchronization and the aspect ratio) are very simple, but only if you know what they're for. Most users will be capturing ▸

Freeze frome video oction on your screen with Vidi-ST. The process is controlled through the Vidi-ST software which offers the fomilior drop-down menu bors and boxes.

quality video within minutes of opening the box.

Brightness, sample and playback speed, and selected palette are software controlled. No matter what the sampling rate (delay between grabs) is set to, each capture is instantaneous. Since the image is 16-shade monochrome and the ST palette only contains seven true grey tones, a variety of color-toned palettes are included from which to choose. Users can create, save and load palettes of their choice as well. Additionally, the Vidi-ST software allows "quantizing" an image to reduce the number of shades used. This can occasionally improve the appearance of an image, but is most useful for freeing up some colors for use elsewhere in the picture (titles or what have you), or for displaying two edited vidi-pix at once with different color schemes. Taken further, the quantizing can create "poster art" type high-contrast images, which might make great backgrounds for title screens on home videos.

Special effects are provided in the software. Cut and paste any size box from one screen to another or collect a group of cuts on a "clipboard" to save for later pastes. Load in any DEGAS or Neochrome picture for a background and open a window on it for a live video capture (the old sideshow "put your face on the fat woman/muscle man cutout" comes to mind). A sequence can be displayed, sped up for dramatic or comedic effect, or slowed down for study of each motion it reveals. An interrupt feature lets a live capture be periodically replaced with a screen of choice, which can be useful for an advertising display or for checking the position of live objects against an earlier shot.

Updated Features

The latest software update (version 1.28) for Vidi-ST adds two big features: group save and load, and hardcopy printing control. A series of frames can be saved to disk automatically, with the filenames, including the sequence number of each. Similarly, they can all be loaded back into the Vidi-ST software with a single selection. Some clever disk checking and file operations alert the user if there will be room for only part of the set or if the set is incomplete, allowing a selectable range to be loaded alone. The pictures are saved as individual PI1 or NEO files, which makes them easy to load into an animation system like CyberPaint where they can be edited further, have titles superimposed and be saved as SEQ or DLT format animation files. But be warned: the files will be *big*.

Vidi-ST now supports printing with Epson-standard 9- and 24-pin printers. The full screen or any selected part of it can be printed with your choice of density, aspect ratio and size, horizontally or vertically. Output quality is remarkable in all settings, which encourages you to print a set of full-page "tiles" from a picture, assembling a wall-size finished image. Naturally, the larger you blow up part of a picture, the "blockier" it gets. Similarly, reducing a full picture to a one-inch print will lose detail, but the image remains as true as the size and printer resolution allows. The print quality of the video pictures is more than adequate for use in newsletters and such and looks great on the Epson-emulating DeskJet or laser printers too. The new printer options are almost enough fun by themselves to be worth the price of Vidi-ST. Remember, you can load and manipulate *any* standard picture for printing.

What about color pictures? Vidi-ST does not support Digispec or similar systems based on raw data files generated by Computer Eyes, a competing digitizer. Vidi-ST achieves its speed by sampling and constructing images in its own hardware, delivering only finished pictures into your ST. Some users have written utilities and systems that should let you combine three color-filtered shots of the same scene into Spectrum format, but not a lot has been finished in this area.

Monochrome monitor support is marginal at this time. A feature-stripped mono version of Vidi-ST software comes on the disk, but its performance is very slow and not really adjustable. Also on the disk are several programs and routines of interest to programmers who may want to tie Vidi-ST input into their own creations.

Special effects are provided in the software.

The strong suit of the Vidi-ST is the instant pictures, plus the available collection of animation shots. Even if you only want one picture, imagine being able to select exactly the moment you want from a range of pictures! A feature of Vidi-ST shows 16 mini-screens at a time, letting you mouse-select any one for viewing or manipulation.

Summed Up

Vidi-ST is the most enjoyable computer accessory I have ever used. It eliminates the major drawbacks of other digitizers, adds the new dimension of animations and does it fast and well. ■

John Nagy is a freelance writer who lives in Panorama, Calif. This is his first review for START.

PRODUCTS MENTIONED

Vidi-ST Real-Time Frame Grabber, $199. Computer Games Plus, Box 6144, Orange, CA 92667, (714) 639-8189.

WORDUP VERSION 2.0

Beyond MacWrite for the ST

BY JIM PIERSON-PERRY, START CONTRIBUTING EDITOR

While the perfect word processor remains a Holy Grail, Neocept has taken another step toward it for ST/Mega users with its release of WordUp version 2.0. Commercially available for two years, WordUp was the first word processor for the ST to marry text and graphics in a true WYSIWYG (what you see is what you get) environment. This type of program is often referred to as a document processor.

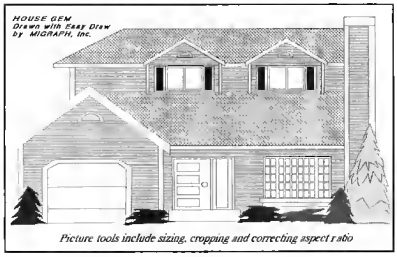
New features in this upgrade include support for hanging indent tabs (outdents), accent mode to create composite characters, the ability to import GEM metafiles and DEGAS Elite compressed picture files and provide scaled font point sizes derived from the native GDOS fonts. Lingering bugs from earlier versions, such as the 32K limit on importing IMG files and crashing if out of free memory, have been eradicated and the program's overall speed has been significantly boosted. 520ST users will appreciate the additional 40K of memory that has been freed up and the ability to use a 24-pin printer.

Setting Up

Installation went smoothly on my hard drive. WordUp comes as a set of nonstandard archived files on three program disks. A well-designed installation program automatically extracts the files and sets up a GDOS font/driver folder and ASSIGN.SYS file for you.

At this writing, GDOS printer drivers are provided for the Epson FX/MX/JX/LQ series, Atari SMM804, Citizen Tribute 224, Toshiba P series, Atari SLM804 laser printer and HP LaserJet/DeskJet (through the TurboJet add-on GDOS driver). If your printer is not supported, Neocept offers to write a driver for it. Migraph has announced a forthcoming Postscript GDOS driver that should work with WordUp. Currently, the GDOS driver included with UltraScript offers limited Postscript compatibility (described below).

WordUp is not copy protected and runs on all STs and Megas with either a monochrome or color monitor. A high-resolution emulator can be invoked with a color monitor giving superior screen display at the cost of losing half the number of text lines normally displayed. Despite some reports I've heard, I had no problems using Codehead's G+PLUS (version ▶



Picture tools include sizing, cropping and correcting aspect ratio

Sample printout from WordUp using an SLM804 laser printer. This shows off some of the program's graphic-import capabilities, as well as multiple fonts and styles on the same page.

1.3) in lieu of GDOS.

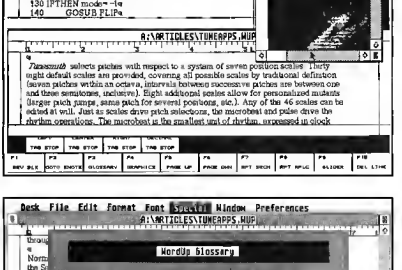
The three standard sets of GDOS fonts — Swiss, Dutch and Courier — are included with WordUp. Atari laser-printer users are expected to use the fonts and driver which come with the SLM804. While the WordUp fonts are sufficient for many needs, you may augment them with new GDOS fonts. Several collections are available on CompuServe and GEnie and Neocept also sells FONTZ!

WordUp is well behaved under GEM; desk accessories are available and normal windowing operations are supported. It worked flawlessly with every desk accessory, alternate desktop, file selector and memory-resident program I tested. The manual has not been updated for the new release, leaving it all to a README file on disk. Tutorials, with corresponding disk files and a hints/tips section are presented in the manual to survey program functions and get you started.

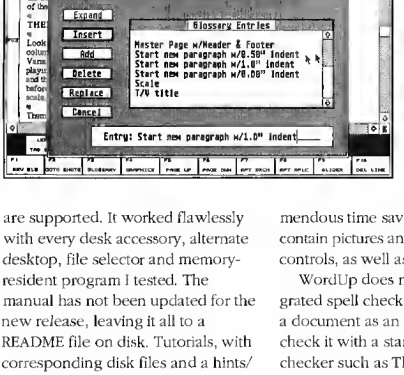
The WordUp Glossary

One of WordUp's best features is the glossary, where you define text strings (including font, point size and style attributes) linked to key words, abbreviations or phrases. Enter your text using these shortcut key words. While editing, you can select the key words and automatically replace them with their glossary equivalents. Multiple glossaries are allowed; I use one for scientific writing and another for music/MIDI, and find them to be tremendous time savers. Glossaries can contain pictures and paragraph format controls, as well as text strings.

WordUp does not have an integrated spell checker but you can save a document as an ASCII file and check it with a stand-alone spell checker such as Thunder! from Electronic Arts.



Main working screen of WordUp with three open documents, two text and one a graphic. The screen buttons at the bottom handle some of the most common edit commands. They can be triggered with the mouse or their function key equivalents.



Here is a typical index of entries in a glossary. These entries include formot controls, a graphic, and text strings.

Some Thoughts and Recommendations

Overall, I am pleased with WordUp, for both dot-matrix and laser-printer use, and have no hesitation recommending the current version. Bugs and limitations that plagued earlier versions have been cleaned up and overall execution speed is significantly faster. Its graphics capabilities and master-page features put it above most word processors, though not quite at a desktop publishing level.

There are some hurdles left to clear. A spell checker seems to be a requirement for today's breed of word processors. More important to a writer are providing a word count, true multiple columns, intelligent hyphenation, remaining memory indicator and undo last command. Neocept has shared with me plans for the next upgrade that will definitely include a spell checker and thesaurus, word count and new fonts with even better resolution. As this is still under development, other capabilities may well be added.

Note: subsequent to shipping this new version, WordUp program disks with serial numbers in the range WUP004000 to WUP004250 and WUP100350 to WUP101124 were found to contain a "key disk" virus. Neocept immediately notified users through national BBS services and by mail of the problem and offered an in-house virus killer if needed. George Woodside's VKILLER program, found on most BBSs also does the trick. ■

Jim Pierson-Perry is START's special Music/MIDI Editor and writes "The ST/MIDI Connection" on a regular basis. He lives in Elkton, Maryland.

PRODUCTS MENTIONED

WordUp version 2.0, $79.95. Neocept, Inc., 547 Constitution Avenue, Unit A, Camarillo, CA 93010, (805) 498-3840.

FA.ST TAPE BACKUP FROM ICD

BY DAVID PLOTKIN, START CONTRIBUTING EDITOR

The FA.ST tape backup from ICD takes the hassle out of backing up precious data from your hard drive.

Most hard drives contain many, many megabytes of often irreplaceable information. The consequences of losing this information can be disastrous, especially if you make some or all of your living using your computer. You should, therefore, backup your hard drive on a regular basis. That way, if the unthinkable occurs, you can recover your data.

Unfortunately, very few hard-drive owners, especially ST users, ever back up their hard drive, and it's easy to see why. Until recently, the only way to back up a hard drive was to move the information onto floppy disks, then store the disks somewhere safe. Doing it this way is certainly economical (floppies are cheap), but it involves a tremendous effort on ▶

your part. You not only have to wait while the information is copied to the floppies, but you must be physically present to switch floppies every few minutes.

The Backup Process

Backing up a hard drive to floppies can take anywhere from less than an hour to many hours, depending on what software you use and how much information you're transferring. For example, Dave Small's Meg-a-Minute (START, November 1988) will move information quickly onto preformatted floppies. The result is a mirror-image copy, which means it's only recoverable with a full restore — you can't get at any of the files individually. Further, the information must be restored to the same-size partitions. Thus, if you have to replace your hard drive after a crash, you'll have to format the new drive exactly like the old one, providing you can remember how the old one was formatted!

There are other, more flexible backup programs available. George Woodside's Turtle is my favorite. Despite its name, it is quite fast, and can support file-based backups. File-based backups are more flexible than image copies, because individual files can be recovered from the backup. Most of the programs also support incremental backups, with which you can back up just those files created or changed since the last backup. You can usually either specify a date or use the "archive bit" of each file, which records whether the file has been backed up in its current form. Adding anything to an existing file or creating a new file sets the file's archive bit off, so that your program will back it up the next time around. Although incremental backups are faster, you end up with a large pile of disks (the original backup) and lots of smaller piles (the incremental backups). Any necessary restore is complicated by the fact that you must restore from each disk in the collection.

So, its pretty easy to see why people don't back up their hard drives on a regular basis — it can be a major hassle. Fortunately, there is an alternative.

Fast Backup

In the world of PC-compatibles, people who really need to safeguard their data use tape backup drives. Until now, though, no tape backup drive has been available to ST owners. The FA.ST tape backup unit from ICD makes this option available at last. The drive is fast, accurate and works very well. It isn't cheap, but it will pay for itself in peace of mind and in the ability to easily restore your precious data if you should ever need to.

The FA.ST tape backup drive is only about three inches high, with a case of Atari grey. It is built of heavy-gauge steel and can be placed under a monitor. The port for inserting the cassette that stores the information is on the right side, with a rotating handle that locks the cassette in place or ejects it when you're finished using it. There are three front-panel lights that indicate the drive status and a power switch mounted on the back (which makes it almost totally inaccessible).

Connecting the FA.ST tape backup drive is easy. Just run the included cable to the hard-drive port of your ST, then connect any other devices to the DMA pass-through on the back of the FA.ST drive. The FA.ST is a SCSI device and has a SCSI port on the back. The drive comes factory preset with a SCSI ID of 3, but this can be changed by pressing a switch on the back of the drive. You don't need to open up the drive and mess with jumpers to change the SCSI ID. Including this device was extremely thoughtful on ICD's part — in fact, all SCSI devices should have this switch. ICD also includes a small program called IDCHECK that checks the SCSI bus to see what devices are out there.

The FA.ST tape backup drive comes with special software for booting your hard drive, and you *must* use this software, which recognizes removable medium (such as the tape backup tapes). Following the instructions in the manual, you install the software so that your drive boots from the ICDBOOT.SYS that came with the tape drive. According to the manual, only ICD hard drives or drives that use ICD host adapters can be autobooted, but this is not strictly true. What is true is that the system will work fine as long as there is a device in the system that contains an ICD host adapter (such as the tape backup unit itself). But be warned, removing the FA.ST tape drive from the system for any reason will cause your hard drive to stop autobooting.

Very few hard-drive owners, especially ST users, ever back up their hard drive.

Easy to Use

Once things are set up and the software installed for autobooting, using the tape drive is easy. Simply double-click on TAPE.PRG and follow the on-screen prompts in a

well-constructed dialog box. You have the option to do an automatic file backup to tape, restore an automatic file backup or copy files. If you decide you want to make an automatic backup, a dialog box requests you to select the partitions to back up. You can select as many of the available partitions as you like, or click on the ALL button to highlight them all. A dialog box will then appear that lets you enter up to four lines of text. The backup files can either be placed at the beginning of the tape (the tape will rewind automatically to the beginning) or appended to an existing copy. However, if you append, you cannot recover the files using the automatic restore — you'll have to use the COPY command.

The automatic file restore will restore the contents of your hard drive from the automatic tape backup to the exact state in which the files were saved, with one important exception. Any files that were created since the backup are left intact and untouched. The automatic file restore will *not* restore just certain files, for that you must use the COPY function. This function will restore files not only from backups made with the COPY function, but from automatic full backups as well.

The COPY function presents a dialog box consisting of two areas. The box on the left lets you specify the source unit (drive or tape) and files, while the box on the right is for specifying the destination unit and files. You can copy files just about anywhere — from your hard drive to tape, from the tape to the hard drive, or even from one place on the hard drive to another. You can select multiple files in multiple folders from either the tape or the hard drive as your source. However, you can't select multiple files from different units (i.e., hard drive or tape partitions). When you're working with a tape partition, a dialog box shows what's on the tape, when the backup was made, and the four lines of text that you specified when you made the backup. You can change tape partitions, rewind the tape or select the current partition for copying.

For just a few minutes a day, you can be sure your data is backed up and safe.

The image backup option is quite different from either the automatic backups or COPY mode. The Image mode dialog box lets you select which partitions you want to back up of switch drives (if you have more than one). Once you have selected the drives you want to back up, the image backup process will begin. An image backup can only be restored by an image restore, so it normally makes more sense to use the automatic file backup or COPY modes. However, the only way to back up a non-GEM partition (such as Magic or Spectre partitions) is with an image backup. Fortunately, you can back up your normal GEM partitions using a file backup, then append the image backup to the end of the file backup. The automatic image restore will still find the image backup when you do this, so you can have both kinds of backup on one tape.

The Automatic function is the easiest way to back up and restore, but this limits you to one backup per cartridge, although each cartridge will hold 155MB of data. ICD recommends using two or more tapes and using them on alternating days. That way, if your hard drive crashes during the backup process, your latest backup is not more than a day old. The Automatic functions are very fast — I backed up my hard drive (four partitions, 24MB of data, 1,805 files) in just under four minutes. Now, *that's* impressive.

The manual that was included with my FA.ST tape backup drive was stamped "preliminary" and consisted of sheets of paper stapled together. It was, however, complete and well-written, except for the slightly misleading part about needing an ICD drive. The manual even included a trouble-shooting guide, which correctly identified a problem I was having during setup, and told me how to solve it. Having potential problems laid out logically like this was very helpful.

Recommendotions

So, is this unit for you? If you don't store lots of important data on your hard drive, or you really do backup to floppies on a regular basis, then I guess not. But if your livelihood depends on that data, or you value your peace of mind, then I highly recommend it. And I'm not the only one. Respected members of the ST programming community have all bought FA.ST tape backup drives. For just a few minutes a day, you can make sure your data is backed up and safe. ■

Contributing Editor David Plotkin is a chemical engineer at Chevron, U.S.A.

PRODUCTS MENTIONED

FA.ST Tape Backup
$899.95. ICD, Inc., 1220 Rock Street, Rockford, IL 61101, (815) 968-2228.

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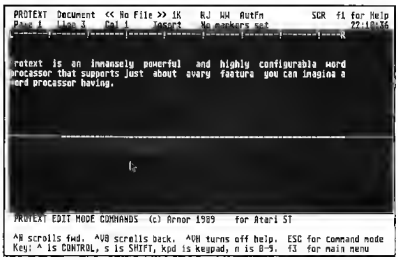
PROTEXT

Command-Line Word Processor from MichTron

BY DAVID PLOTKIN, START CONTRIBUTING EDITOR

Protext is an immensely powerful and highly configurable word processor that supports just about every feature you can imagine a word processor having. It does not, however, utilize GEM, relying instead on its own command-line interpreter. Be prepared to memorize (or look up) a vast array of commands in order to make use of Protext's many features.

Protext comes on three single-sided disks. It is not copy protected, so it is easily installed on a hard drive.



Protext's text mode.

Protext Modes

Protext contains two basic modes: command and text. Commands such as Load, Save and Merge Text must be executed from command mode.

There are no drop-down menus or screen icons to activate features. You must memorize keystrokes. To cut a block of text, for instance, you must first mark the block by placing the cursor at the beginning of the text to be cut, press [Control]-[Z], then move the cursor to the end of the block, pressing [Control]-[Z] again. Once the block markers have been set, press [Control]-[M] to move the block or [Control]-[Delete] to delete it.

Fortunately, if you forget a command, you can press [Help], [Control]-[H] or [F1] to activate Protext's online help. This help mode tells you what key activates a specific command, but strangely, the keys given in this mode are different from those you press to activate the command from text mode. Also, common commands, such as setting text to bold ([Control]-[X]-[B]), are not included in this menu.

Press [Esc] to enter text mode; the entire screen becomes available for typing. Protext displays your text on the screen in two different ways. The first shows any special text (such as bold, underline or italic) as it will appear when printed, making it a WYSIWYG word processor. The other display method shows the control codes for the special text.

The bulk of text control in Protext is achieved using "inline" commands, i.e., commands that are imbedded within the text at the beginning of a line. The tremendous power and control you have over Protext is a function of these commands.

For paper layout, you can set top, bottom, left and right margins, as well as setting the paper length. Messaging commands let you add nonprinting comments, clear the screen, execute a command, insert files into the text, write infonmation to another file, and wait for the user to press a key. Printer commands include defining a control code, setting microspacing parameters and using proportional printing. ▶

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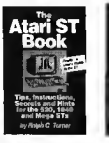

Ralph Turner's new book, *Intermediate & Advanced Atari ST Subjects*, covers hard drive management & optimization, IBM emulators, disk structure and file recovery, connecting a 5 ¼-inch floppy drive, assembling a hard drive system froro inexpensive components, SCSI ID numbers and LUN IDs, sector and file editing, binary, hexadecimal and decimal codes, ASCII file problems, escape codes, miscellaneous tips, and much more. His *Atari ST Book* covers RAM disks, the AUTO folder, Desktop tricks, Installing an Application, adjusting the Control Panel's Palette Settings, Public Domain Software, Copying, Printers, Desk Accessories, Telecommunications, the Item Selector, and much more. Neither book requires a knowledge of programming. $16.95 each, plus $2.00 shipping each ($2.50 each to Canada). Check, Money Order, VISA or MasterCard. Index Legalis, Post Office Box 1822-49, Fairfield, IA 52556. Phone: (515) 472-2293

The last two categories of commands are by far the most powerful. Variable/Data Input commands let you define variables, read variables and set the number of decimal places to use. Conditional printing commands are actually a small programming language including IF/THEN/ELSE and REPEAT/UNTIL statements.

These two command types work together to provide considerable flexibility for mail merging from a variety of data formats, and generating forms based on certain criteria. For example, different data files can be used during a mail merge, and data files can be changed in the middle of the merge with a single imbedded command. Data can be supplied by typing it in response to a prompt, and can then be assigned to a variable and used both as text to print and as part of the decision process.

Protext also has the usual macro facility, configuration utility and spell checker that are standard on high-end word processors. Unlike its competitors, however, Protext's command-line capabilities give it flexibility to calculate numeric expressions entered at the prompt, and run any program that will fit in memory with Protext.

Protext Utilities

Protext's conversion utility relies heavily on the imbedded-command scheme. You create a text file containing conversion commands, which Protext processes in order to translate other word-processor files. It is up to you to know what conversions are needed (i.e., what codes must be changed, etc.) and then to write what amounts to a small program, using the available commands, to do the conversion. It is far easier to save a file in ASCII and read it into Protext. Conversion programs for ASCII, CPM Protext and WordStar are included.

The SETPRINT utility supposedly helps you build a printer driver, but once again, most of the work is left up to you. What you must do is set up a text file in the required format that specifies your printer's codes. SETPRINT will then convert this to a .SRC file that Protext can use. Fortunately, drivers for most major printers are included.

The Protext Manual

The manual that comes with Protext makes for some pretty dry reading and the index is incomplete (missing "Macro," for example), but is otherwise pretty good. The organization jumps around a little (from text to command mode) but most of the information you need is there. Appendices list all the commands for both imbedded and command-mode commands, although more information on the conversion utility would have been nice. The manual includes many samples of commented mail-merge templates illustrating conditional printing and complex logic. The package also comes with four tutorial files which are of limited usefulness, but do let you start working with the product quickly.

Summary

Protext is tremendously powerful, but this power comes with a price: a relatively steep learning curve. Admittedly, there is no easy way to incorporate such sophisticated features as conditional printing and complex mail merging without learning to use imbedded commands, but it would be nice to have access to such common features as save, load and margin setting from GEM's drop-down menus.

To decide whether Protext is for you, you must ask yourself: do I need its power and am I willing to pay the price in both money and time. ■

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up program. Choose Auto prgs/Accs
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INFOBASEST

BY JAMES W. MAKI

Organize! See INFOBASE.ARC and INFO_SRC.ARC on your START disk.

InfoBaseST is a structured database with a twist. Not only does it let you specify fields, it also lets you design their appearance and screen placement — you aren't locked into one predetermined format. Add to this versatility the power of flexible searching, sorting and output and you have a dependable, valuable workhorse.

Getting Started

To use InfoBaseST, copy the files ARCX.TTP and INFOBASE.ARC onto a blank, formatted disk and un-ARC the file following the instructions elsewhere in this issue. On the disk you'll find the database program itself, INFOBASE.PRG and the help file, INFOBASE.HLP.

InfoBaseST was written in OSS Personal Pascal version 2. The source code is in the file INFO_SRC.ARC. To examine the source, copy ARCX.TTP onto a blank, formatted disk. Leave INFO_SRC.ARC on a separate disk, unless you have a double-sided drive. Un-ARC the file following the instructions elsewhere in this issue.

To run the program, double click on INFOBASE.PRG at the Desktop. It first checks for the presence of INFOBASE.HLP in the same folder as itself. If the help file isn't found, you're given the option of continuing or aborting. If you continue, obviously, the help facility is useless. With the help file in its proper place, press [Help] to call up a screen that lists your current choices and other help topics.

Modes

InfoBaseST operates in five modes: Design, Input, Search, Sort and Output. Different features are available depending upon the mode. You can choose the mode, or any other operation, with either a keyboard or a mouse command (see the sidebar for a summary of keyboard commands).

A message line sits underneath the menu bar. The information within it changes depending upon the mode. The rest of the screen is used to display the database. Only one record at a time appears, which means that the format you design must fit within this area.

Design

Before actual data can be entered or retrieved, you must design a new database or recall a previously saved database design file. The program opens in Design mode, or you can enter it by choosing Design [Alt]-[D] from the Mode menu. The message line gives the current cursor position.

Recalling a saved design file is as easy as choosing Open [Control]-[O] under File. Your file-selector utility takes over and a list of format files, which have the extender .SCR, appears. The new format replaces the current one in memory.

To create a new database format, select Enter [Control]-[E] from the Design menu. You're given a dialog box. Let's step through its inputs.

The field label precedes the field. It's there to help you identify a field's contents, but it isn't required. If you don't label a field, two blank spaces are placed before it anyway. Field labels aren't printed during output.

Versatility

The X and Y coordinates determine a field's placement on the screen. When you enter the dialog box, X and Y give the current position of the cursor. If you change X or Y while in the dialog box, the field is placed at that new location. The top left corner of the screen matches the coordinates (1, 1).

Power in

Select a datatype with the mouse. The difference between Name and String is the manner in which searching and sorting is performed. Enter names in first-middle-last format. The program automatically rearranges them to last-first-middle for the sort or search routines. String makes no such assumptions. Name also creates a subsidiary field following the Name field. This unnamed field is a boolean field used to designate company names that should not be alphabetized or sorted like a regular name, but rather like a string. Enter a T to designate a Name field as a company name. Enter F or leave the field blank to designate a regular name.

Customizable

Database

DataType	Description/Features
String	Series of alphanumeric characters [Default].
Boolean	T, F or blank.
Integer	Up to 11 digits of precision.
Real	11 digit mantissa, -38 to +38 exponent.
$ (dollar)	Maximum precision $999,999,999.99. Above will have rounding error.
Date	Month/Day/Year format. Month as number or letters. Year in 2 or 4 digit format. Dividing characters anything but number or letter.
Name	Enter as first-middle-last format. Automatically modifies to last-first-middle for search and sort.

Size the length of the field by modifying Max Size. Its default is 10. The Real datatype can be customized by modifying Real Decimal, which determines the number of decimal places to be displayed. Its default is 5.

Select Continue from the dialog box and, voila, your customized field label and input area appear on the screen, with the cursor on the line below it. Now you can repeat this process for additional fields. The next field will appear at the cursor's location. You can move the cursor with the arrow keys or by pointing the mouse and left-clicking.

Once your design is complete, select Save [Control]-[S] from the File menu. If you don't save the design, a prompt will appear when you exit the program. If the file already exists, it will be renamed with the extender .BSC. If a backup file exists, it will be lost.

Modifying Fields

To modify an existing database field, position the cursor anywhere in the field and select Modify [Control]-[M] from the Design menu. Enter the changes and select Continue or select Delete to delete the field. A field can also be deleted on screen by positioning the cursor within it and selecting Delete [Control]-[D] from the Record menu.

If a field's position overlaps that of another, InfoBaseST returns you to the Modify screen. Select Delete to exit this cycle (and delete the record) or change the X and/or Y position to one not already occupied. The program modifies the size of X or Y values when they don't conform to the screen size. You're prompted if a change is made.

A field can be repositioned by placing the cursor anywhere in the field and pressing [Shift] and the arrow keys. You can move the entire field anywhere, but you can't overlap fields.

The entire design can be erased by selecting Clear [Control]-[C] from the File Menu or clicking on the window clear box in the upper left-hand corner.

Input

Select Input [Alt]-[I] from the Mode menu. Loading a saved design file also puts you into Input mode. The message line shows the datatype of the current field, the record number of the current record and the total number of records.

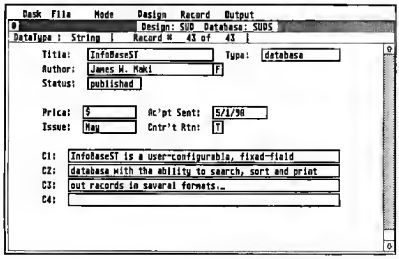
Place the cursor in a field and type in its data. If it's a data field, pressing [F10] will enter the current system date. Return takes you to the next field and the arrow keys move you around all the fields. You can also use the mouse to position the cursor.

Data length is limited to the size of the box. [Esc] clears a field. New Rec [Tab], from the Record menu, takes you to a blank record at the end of the database. Also on the Record menu are First Rec [Control]-[Left Arrow], Last Rec [Control]-[Right Arrow] and Delete [Control]-[D], which applies to the current record. [Undo] retrieves the last deleted record.

Write the database to disk by choosing Save [Control]-[S] from the File menu. It will be saved with a file extender of .DAT. If a file with the same name exists, it will become the backup file, with extender .BDT. If a backup file already exists, it will be lost.

To retrieve a saved database, select Open [Control]-[O] from the File menu. Database files have the extender .DAT. If a database already exists in memory, you're given the option of merging the old and the new or abandoning the existing database.

The size of fields in the database and the design format must match. If they do, the data will be loaded. If not, you'll be requested to instruct the program on how to interpret the stored data.



Sample InfoBaseST screen.

Loading a Dissimilar Database

A database created with a customized format different from the current one can be loaded into InfoBaseST, but you first must tell the program which fields to equate.

The message line displays information about your database fields (disk size) and your design fields (memory size). For example:

{Database to be loaded} {Current format}
Disk : Name/30 | Label : Author !! Design : Name/30 ▶

The database field is datatype Name, size 30, with the label Author. The current design format field is datatype Name, size 30. These two are easy to equate; both the type and size match. Simply click the right mouse button to tell InfoBaseST to load the Author field into the current Name field.

If you want the current database field loaded into a different design field, use the left mouse button or keypad to move the cursor to the field you want, then click the right mouse button.

An asterisk appears on the screen next to the selected design field and information about the next database field appears on the message line. To skip a database field, select Next [Shift]-[Right Arrow] from the Record menu. To move to a previous database field, select Previous [Shift]-[Left Arrow] from the Record menu. When all of the fields have been chosen, select Quit [Control]-[Q] from the File Menu and the disk database loads into the screen design in memory. Data may be clipped if the database field is longer than the design field.

InfoBaseST accepts both keyboard and mouse commands.

Search

Select Search [Alt]-[F] from the Mode menu. (I used F for Find since S was needed for Sort.) A blank design format appears. In the appropriate fields, enter a search template. You can use the asterisk (*) for a wild card. For example, *Smith finds all persons with the last name Smith, while John* finds all persons with the first name John. *Ann* finds everyone with Ann as any part of their name. Remember, Search is case sensitive.

For each field, you must also enter a search criteria. This tells InfoBaseST how to compare records to the search template. The default criteria is '='. The message line displays a list of valid search criteria and the chosen search criteria for the current field. For example, searching a money field with a template of 200.00 and a criteria of '<' finds all amounts of $199.99 and less.

When you've entered your template and criteria, select Search [Alt]-[F] from the Record menu. When the search is done, you'll have access to only those records which the search found. You can scroll through the search subset as usual, edit the records and save them. The message line tracks your position in the subset and continues to display information about the searched database.

When you're through with the search subset, select Input [Alt]-[I] from the Mode menu. If no records match your criteria, you'll automatically return to Input mode. Search finds records that match every field for which you specified criteria, for example, under $200 and named Smith.

An OR Search

InfoBaseST can do "or" searches. For example, it can find the records of every president who was named Roosevelt or was born in Illinois.

First search for all presidents with the last name Roosevelt. Then, while still in Search mode, select Search [Alt]-[F] again. An alert box opens and asks for the disposition of your current search list. Pick the OR button. (NEW abandons the current search list and Cancel returns to the current search list.)

Next, enter Illinois as the search criteria for the place of birth (leaving the name field blank). The program will search the entire database and add those records that match the second search to the initial list of presidents named Roosevelt. Duplicate records (Name = Roosevelt AND birthplace = Illinois) will be displayed only once. This sequence can be repeated as often as you want as long as the program remains in Search mode.

Select Save [Control]-[S] in Search Mode to save only the records selected by the search routine. InfoBaseST will still have the name of the original database as the default, so be careful to specify another or else you may risk overwriting the original database.

Sort

Select Sort [Alt]-[S] from the Mode menu. The message line gives the key commands for ascending [Shift]-[Up Arrow] and descending [Shift]-[Down Arrow] sorts.
Place the cursor in the field(s) upon which you want to sort. Choose an ascending or descending sort. An up or down arrow and a number (if the field is longer than one character) will be displayed in the selected field. The number indicates the

Disk-File Types

There are six file extenders utilized by InfoBaseST.

Extender	Use
.SCR	Screen design
.DAT	Database storage
.PRT	Report design
.TXT	Report output to disk
.BSC	Backup screen design
.BDT	Backup database

When loading or saving a file, the file selector will prompt with the proper extender.

Command Summary

(^ = [Control])

Menu	Command	Keyboard	General Description
File	Open	^O	Open a disk file
	Save	^S	Save a file to disk
	Clear	^C	Clear current screen
	Quit	^Q	Exit program
Mode	Design	Alt-D	Enter Design mode
	Input	Alt-I	Enter Input mode
	Search	Alt-F	Enter Search mode
	Sort	Alt-S	Enter Sort mode
	Output	Alt-O	Enter Output mode
Design	Enter	^E	Enter a data field
	Modify	^M	Modify a data field
Record	Search	Alt-F	Process search request
	Sort	Alt-S	Process sort request
	Next	Sh->	Move to next record
	Previous	Sh<-	Move to prev record
	FirstRec	^<-	Move to first record
Record	Last Rec	^->	Move to last record
	Delete	^D	Delete current record
	New Rec	TAB	Create a new record
Output	Print		Output to printer
	Disk		Output to disk
	Screen		Output to screen

Non-Menu Commands

F10	Enter current system date into date field
F1	Toggle field selection list in Output mode
F2	Toggle field selection list in Output mode
Undo	Recall last deleted record

In addition to the above cursor commands, the vertical scroll bar and arrows can be used to traverse the entire database in Input mode or the selected records in Search mode. The location of the scroll bar graphically illustrates the current location in the database.

field's place in the sort order. The 1 field will be the primary sort key. The 2 and above fields will only be used if the earlier keys are equal.

If you make a mistake, pick Input [Alt]-[I] from the Mode menu to exit Sort, then choose Sort [Alt]-[S] again and start over. When all of the desired fields have been defined, select Sort [Alt]-[S] from the Record menu to begin. The sort may take some time, so be patient.

When the sort is complete, the program automatically reverts to Input mode and displays the first record.

Output

Select Output [Alt]-[O] from the Mode menu. Output mode can be entered from either Input or Search mode. A dialog box appears.

At this point you can retrieve a previously saved output format. Choose LOAD and select the format file, which has an extender of .PRT.

If you want to create a new output format, customize the items in the dialog box. Select the type of output: Report, Single Label or Multi Label. Single Label prints only the current record displayed on the main screen. Multi Label and Report both print the entire database, or search subset.

Report will print information in a columnar report format, with room for text at the head and foot of each page, while the two label selections output each record to a form, such as a label, Rolodex™ card or index card.

Report Lines specifies the number of lines (1-4) each record is allowed in Report format. Label Lines gives the number of lines (1-10) on each label. Top Lines and Bottom Lines are the number of blank lines (0 - 99) at the top and bottom of each label.

You're also given the choice of several special print modes. WIDE prints 132 columns and requires a wide carriage printer, or prints 80 columns condensed on a standard printer. WIDE, BOLD, ITALICS and SPECIAL require you to specify the printer initialization code sequence, unless you select WIDE and are using a wide-carriage printer. Enter the decimal numbers, separated by a space, of the commands found in your printer documentation.

Abort returns you to the mode you started in, either Input or Search. Nothing will be printed. To design your output format, select Continue. The output design screen will appear.

Output Design Screen

The top of the screen displays the first 10 fields of the current database. Go to the next 10 using [F2]; return to the previous 10 by pressing [F1]. You can also use the vertical scroll bar.

If you loaded a saved output format, it is displayed in the bottom half of the screen. Otherwise, the bottom of the screen is blank.

Report

Database fields can only be located between the two horizontal lines in the bottom half of the screen. To select a database field, position the cursor using the mouse or arrow keys, then select the field from the ▶

list at the top by pointing to it and left-clicking the mouse. The appropriate letter will appear in the design area, repeated for the length of the field.

The areas above and below the lines are where you enter the header and footer information that appears on every page of the report. You can type in straight text or use the following special commands:

@Date	print the current date
@Page	print the current page number
@Line	print the current line number
@Rec#	print the current record number
@Null	do not print the extra spaces for each field (The line will not be forced to print in columnar format, with extra spaces included to make all lines start at the same position. It is useful for addresses, for example.)

Label

Designing a label is identical to the procedure above, except the entire screen, up to the number of Label Lines you specified, is available for database field placement. Any text you enter will be printed on every label, exactly as written.

Output Mode Options

While in Output mode, you can use any of the options under the File menu. Save [Control]-[S] saves the current output format in a .PRT file. Clear [Control]-[C] deletes the current output format, and remains in Output mode. Load [Control]-[L] reads in a saved output format. Quit [Control]-[Q] exits InfoBaseST.

Select an option under the Output menu to generate the actual output. You can direct it to the printer, screen or disk. The printer and disk options prompt you for the number of repetitions, which can be any number from 1 to 999. This is useful for printing multiple address labels. Reports saved to disk have a .TXT extender.

The screen option prints only once. Use [Control]-[S] to stop scrolling and [Control]-[Q] to resume. The display wraps if WIDE has been chosen.

Many Thanks

I would like to express my sincere gratitude to two ST users who acted as beta testers for InfoBaseST. Without the input of Rob Gallau and Rod Falanga, InfoBaseST would be a lesser program. I also wish to thank Computer Works of Carmel, Ind. for testing a portion of InfoBaseST on a Mega 2 when a potential problem developed. ■

James W. Maki is a freelance programmer who works out of his home in Tacoma, Wash., much to the delight of his 2-year-old daughter, who needs him to fetch her crackers. He wrote VCR Organizer in the February 1989 issue of START.

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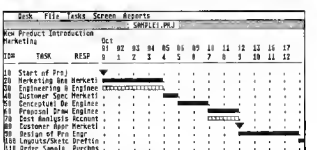

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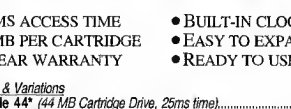

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HOW TO GET START PROGRAMS UP ANY RUNNING

The programs on the START disk have been archived, or compressed, so that we can put more on the disk. In order to use them, the files must be un-ARCed. Before you do anything, however, make a backup copy of your START disk and write protect (window open) both it and the original.

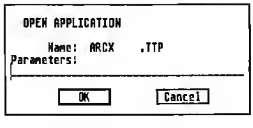
Making a Backup

We format the disk using TWISTER.PRG from the Summer 1988 issue of START to increase the size of a single-sided disk to 400K. You can back up onto one Twisted, single-sided disk; one double-sided disk; or two regularly-formatted, single-sided disks.

Note: *Twister does not work with GEM's Diskcopy.* To make a backup, open a window for your original START disk and drag the files from the window to the backup disk. Store the original and use the backup hereafter.

Un-ARCing the Files

The un-ARCing utility ARCX.TTP is included on your START disk. Copy it to a disk (floppy disk, RAM disk or hard disk) with at least 337K free bytes. Double-click on the ARCX.TTP that you just copied. The dialog box shown below appears.



You now must give it the name of the file to un-ARC. You have two choices.

1) If you have previously copied the ARCed file onto the same disk as ARCX.TTP, type in the filename. There's no need to include the ARC extension. Only use this method if you have enough space on the disk for both the ARCed file and the uncompressed files. Check the chart on the disk contents page for the size of the uncompressed files.

2) Type in the path and name of the ARCed file, for example, A:\EXAMPLE.ARC. If the compressed file is large, it may be necessary to have it on a separate disk so that there's enough room for the uncompressed files in the ARCX.TTP folder.

The screen goes blank. Then the name of each file appears as it is uncompressed, and it is placed in the same folder as ARCX.TTP.

Disk Contents

Programs on Your START Disk

SPRING CLEANING

Just in time for spring cleaning, of the computerized kind, is a versatile, traditional structured database, **InfoBaseST**. James W. Maki's organizing tool helps you whip into shape all that stray data littering your life. Check out the **InfoBaseST Source Code**, written in OSS Personal Pascal version 2.

With all the press about worms and germs and infectious diseases plaguing the computer community, we thought this would be a good time to run **VKiller**, George Woodside's public-domain lifesaver. This is the most important tool in any computer user's library; it detects and defeats known viruses, from the merely annoying to the viciously destructive. **Flu** demonstrates the symptoms of many of these; the program only manipulates the screen and is totally benign.

STYZOR'S CONTEST . . . . . PAGE 68

VKILLER . . . . . PAGE 74

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Speaking of useful medicine, we're prescribing a double dose of utilities this month, **Name-Dropper** and **Quick ST**. The former is Al Hubbard's floppy relabeler. The latter, written by well-known Atari shareware developer Darek Mihocka of Branch Always Software, is a memory-resident program that accelerates your ST, in both color and monochrome. And through an exclusive arrangement, Branch Always offers START subscribers a special upgrade offer for Quick ST version 2.0. Read the Quick ST documentation (on disk) for more details.

Time for fun and action with **Styzor's Contest**, Greg Kowis' deceptively simple, infectiously addictive arcade game. Blast the balls and beat certain death!

Note: Yes, we're back to the pre-Heidi Format days of single-sided disks and ARCX.TTP. We hope you find it less error prone and easier to use. Please read the new disk instructions; they explain some quirks in Twister, the 400K formatting program we used.

■ compatible
□ not applicable

Arcfile	UnARCed Size	Memory: 512K	Memory: 1MB	Resolution: HIGH	Resolution: MED	Resolution: LOW	Notes
FLU.ARC	19K	■	■	■	□	□	companion to Vkiller
INFOBASE.ARC	170K	■	■	■	■	□	
INFO_SRC.ARC	331K	■	■	■	■	□	
NAMEDROP.ARC	20K	■	■	■	□	□	
QUICK.ARC	48K	■	■	■	□	□	
STYZOR.ARC	56K	■	■	□	■	□	
VKILLER.ARC	124K	■	■	■	□	□	

Fight for your life in STYZOR.ARC on this month's START disk.

STYZOR'S CONTEST

Only Fast Mouse Action Saves You From Certain Death

BY GREG KOWIS

Life or death. It's up to you. Keep your eye on the target and your finger on the trigger button. Quick shooting will keep you alive, to once again compete in Styzor's Contest.

You have been captured by Styzor, the evil emperor of Lycon. His greatest pleasure is watching panic-stricken prisoners (like you) compete in Styzor's Contest. His rules are simple: if you score in the top 10, you live; if you don't, you die. The game, once a popular pastime, is now dreaded throughout the empire. Occasionally Styzor prolongs the torture of good players. If you score high enough he may give you a second chance, just to watch your fear and frustration grow.

The Contest

To play Styzor's Contest, copy STYZOR.ARC and ARCX.TTP onto a blank, formatted disk and unARC STYZOR.ARC by following the Disk Instructions elsewhere in this issue. You should get two files. GFABASRO.PRG is the read-only GFA BASIC 2.0 interpreter; STYZOR.BAS is the GFA BASIC 2.0 code for Styzor's Contest, which runs in high or low resolution.

To start the game double-click on GFABASRO.PRG, then pick STYZOR.BAS from the item selector. The title screen appears, then is replaced by the battle screen showing five moving targets and your mouse-controlled blaster. Move the mouse until the crosshairs are centered on a bouncing target then left-click the mouse to fire. You end a wave by destroying all five targets before time, shown in the lower right-hand corner, runs out. Once a wave is finished, it is replaced by another wave, with smaller targets. When you clear all five waves you move to the next level, with faster targets and less time to eliminate them.

If you're worried that you won't complete a wave — which means certain death — you can use the rapid fire control, a right click instead of a left. Your weapon will fire continuously until you release the right mouse button.

But be careful! Rapid firing will cost you points. Your score is shown on the left side at the top of the screen; your level is on the right side. In the center is the high score, the one earned by the best of the 10 best.

The Top 10

Press the space bar any time to pause the game; press it a second time to resume play. You can quit early by pressing [Control], [Shift] and [Alt] simultaneously. If you place in the top 10, you'll see the celebration display, where you can put your name on the winners' list. The top 10 scores are stored in a file named STYZOR.DAT, which will be created if it doesn't already exist. ■

Greg Kowis lives in Arkansas. This is his first program for START.

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WINTER NAMM SHOW REPORT

Atari Unveils Multitasking TOS

BY JIM PIERSON-PERRY, START CONTRIBUTING EDITOR

Todd Bone

Atari mode on impressive showing ot the Winter NAMM show in Anoheim, Calif.

For three days last January, the eyes of the music world locked onto Anaheim, Calif., for the annual Winter NAMM show (National Association of Music Merchants). "Suits," "punks" and all varieties in between descended on the convention in a technolust feeding frenzy to view, test and snap up the latest crop of music equipment and software.

Atari again showed its commanding position as the "musician's computer" (in fact, virtually the only computer company present) between its own booth and the numerous developers of Atari-related products, many with Stacy portables running their wares. This must have been particular galling to Apple, whose Mac laptop suffers from a serial-port design problem, preventing it from running current MIDI applications without software patching. Even better than hardware, Atari finally unveiled its selection of a true multitasking system, now endorsed as the official standard for software developers.

Power wos in the port ot the NAMM show. MIDI demonstrotions showed Atori's commitment to music.

The Atari "Studia"

Far from the madding crowd, Atari was located in a suite overlooking the convention floor. Efficiently managed by special projects director Frank Foster, Atari featured demos of the Hotz controller, computer and mass storage hardware (including third-party rackmount versions of the Mega 2 and 4), film sound-editing techniques and even the wildly popular Lynx game unit. Also making its debut was the MIDI Magazine quarterly from Atari, more evidence of its commitment to this important niche market. As with past NAMM shows, Atari co-sponsored a concert event; this time featuring Jack Bruce and Ginger Baker, two thirds of the former superband Cream.

Stacy is a reality — at least for musicians. While the FCC has yet to approve it for home use, 2MB and 4MB versions with internal hard drives have been approved for sale as professional equipment. These will be sold exclusively through music stores.

The production version of the "Hotz Box" was demoed by Jimmy Hotz and Mick Fleetwood to visitors who were encouraged to try it for

themselves. This combines novel touch-sensitive controller pads with easily programmable software, mapping the pads to send any desired MIDI information (notes, volume, modulation, panning, etc.) within defined constraints. The controller maps can change while tracking real-time input (e.g. chord progressions for a song) so a performer never plays out of key, yet maintains exquisite command of expression.

Opinion seems split on the Hotz Box — many are highly impressed by the controller's responsiveness while others condemn it as potentially crippling to musicianship. At least one other manufacturer is offering a similar unit (the Thunder controller from Buchla and Associates), which may confirm the concept. The initial Hotz Box configuration is targeted for professional musicians with a price tag of $7,000 and contains one central controller, two auxiliary wing units and a Stacy to drive it. Additional configurations, including a consumer unit, are planned to flesh out an entire product line. The Hotz Box will be used during the coming Fleetwood Mac world tour, which Atari will sponsor.

Another impressive demo was given by Scott Gershin on the techniques he used to mate sound to film for the recent hit movie "Born On The Fourth Of July." This was done with Atari equipment, including the Atari MegaFile 44 removable hard drive and Hybrid Arts ADAP II direct-to-disk digital audio workstation. (Editor's Note: *See story elsewhere in this issue.*)

In addtian ta the hardware presentatians, live perfarmances underscored Atari's strong standing in the music cammunity.

Multitasking At Last

A head count last summer showed at least five different proprietary variations of "multitasking" systems from MIDI software developers alone, ranging from simple data sharing to simultaneous multiple-program execution. Unfortunately, none of these were compatible with each other and some crashed easily. Obviously some decision had to be made by Atari on a sanctioned approach to prevent total chaos.

The results of a series of product evaluations and developer summit meetings finally came to fruition when Atari decided to license the offering from Intelligent Music as its official multitasking system software. Previously called ST RAM, the software will be known as MIDI-Tasking (reflecting the tremendous impetus from MIDI users). Don't let the "MIDI" fool you, however, this handles full multitasking across all types of application software written to take advantage of it.

Still in beta-test stage, the system works through the desk accessory pipeline, with each application (up to six) running in its own window. Not only do all open programs run simultaneously but interprogram links can be used between applications to exchange data in real time. A non-music example that comes to mind would be a link between spreadsheet and word processor, with changes to financial calculations automatically updated in a summary report. MIDI applications, which live and die by real-time interaction, can have their inputs and outputs routed between windows and the actual hardware input/output ports as the user desires. Run the output of an algorithmic composing program into a sequencer, while you play along and edit, with the combined output going into software controlled mixer. The possibilities are staggering. We'll keep you up to date on the MIDI-tasking system as it approaches commercial release (expected later this year).

In the Trenches

And what of the new products, surfacing among the logjams of humanity on the main floor? For starters, Intelligent Music (of MIDI-Tasking fame above) showed version 1.2 of their RealTime sequencer. This is a maintenance upgrade which provides faster screen response, im-

continued on page 79

VIRUS

BY GEORGE WOODSIDE

What They Are, How They Get There and How to Protect Your System

An ounce of prevention in VKILLER.ARC and FLU.ARC on your START disk.

Guilty. With that word, on January 22, 1990, Robert T. Morris Jr. became the first person to be convicted under a new federal law designed to protect computer systems from malicious break-ins and viruses. Morris was responsible for the "worm" unleashed November 2, 1988, on computers connected via the ARPANET electronic network. Thousands of computer systems locked up as the worm reproduced itself and spread to other computer systems. Indeed, the worm was so prolific that many systems were forced to shut down for days to reload data from scratch just to get rid of it.

Viruses: The Why and the What

Why programmers like Morris create viruses is a difficult question to answer. Some want to prove their programming abilities in an age where "hacking" is the fading art of

George Woodside takes you on a guide through the cryptic world of computer viruses and shows you how they affect you directly. As a special bonus, we've included his virus-detection program Vkiller on this month's START disk.

Kim Scholle

a bygone era. Others claim that they are simply exploiting holes in computer security, thus turning a virus into a good thing. Still others clearly have malicious intent. In the end, no matter what theory you subscribe to, one thing is clear: a computer virus is no fun, especially if you're the victim.

So, what exactly is a computer virus? There are plenty of buzzwords circulating through the industry and there is some disagreement on precise definition. Generally speaking, a computer virus is a concealed program that imbeds itself into another program to be spread and eventually executed. However, the Morris virus has been characterized as a worm because it did not imbed itself into anything. Instead, it sent reproductions of itself from system to system via an electronic network. Another common virus, known as the "Trojan Horse," is a seemingly useful program that conceals another, secret, program or function.

In the ST world, worms are unheard of because there are no significant networks through which they can spread. Neither are there any known Trojan Horse programs in the United States, at least not yet. A particularly nasty Trojan Horse was recently distributed to MS-DOS system users in Europe. It moved all the files on the user's hard disk into hidden folders, then encrypted their names. The victims were instructed to pay the perpetrator a "license fee" of over $300 for software to recover their files. Fortunately, no one did: a recovery technique was quickly developed and distributed by virus fighters.

A number of viruses have, however, found their way to the ST in both Europe and the United States.

Viruses on the ST: Two Flavors

Viruses on the ST manifest themselves in two ways: boot sector and link. A boot-sector virus inserts itself into the very first (boot) sector of a floppy disk. It resides only on that disk, until the ST is powered on or reset with an infected disk in Drive A. When that happens, the virus loads itself into memory and becomes part of the ST's operating system.

The boot-sector virus' mission is twofold: to spread itself to more disks and to eventually launch some kind of attack. This is the easier type of virus to create and detect, and so far all boot-sector viruses reside on floppy disks — none are known to infect hard disks. Doing so would be futile anyway, since the virus depends upon removeable media to spread and hard-disk drives remain within a single system. Of course, with the introduction of removeable hard drives, all that could change.

Link viruses are more sophisticated. They do not attack the boot sector of a disk, but modify programs directly, imbedding (i.e., "linking") themselves into a program's executable code. The modified program then installs the virus into the ST's operating system each time that program is run. Once installed, the link virus spreads into any other executable code it finds and eventually launches its attack.

While they are reportedly spreading in Europe, I am unaware of any link-virus attacks in the United States as of this writing, though it is just a matter of time before they are as widespread here as in Europe.

How Viruses Spread

When talking to the victim of a virus, there are two statements I ▸

A computer virus is a program that conceals itself in another program.

always hear: "I never thought it would happen to me" and "How did this happen?" Well, nobody ever thinks it will happen to them, but it does, every day. If you don't make regular backups of hard disks and keep backup copies of important floppy disks, the results can be disasterous.

Where a virus originates is almost anyone's guess but once released, it can spread like lightning in a number of ways: through user-group disks, BBSs, even commercial software. Late last year three companies — Sub-Logik, Strategic Simulations (SSI) and Neocept — inadvertantly released viruses on early versions of PageStream, Star Command and WordUp respectively. In each case the virus was detected soon enough for each company to rectify the situation before it got out of hand.

Once you have an infected disk, how does a virus get into your ST? When a computer is booted up from a power-off state or reset (in most cases), it executes code from its internal ROM (Read-Only Memory). The ROM sets up primary vectors, minimal system configuration information and performs some fundamental tests to find out what devices are attached and get them into operating status. It also checks the boot sector on an inserted floppy disk for executable status. If that's the case, the code contained in the boot sector is executed. That code may load data files, execute programs, set variables or vectors, add new device drivers — nearly anything imaginable, including infecting the system with a virus, if that's what the boot-sector code contains.

Now that the virus has managed to get onto a disk and get booted into your system, it must accomplish two things. The first task is to spread itself. Normally it will write itself onto nearly every disk that passes through the ST while the virus is active. Some are smart enough not to write themselves onto disks that already contain executable boot sectors. Any disk with an executable boot probably requires that boot-sector function to be useful. If the virus destroyed the boot sector by writing itself on it, the user would notice it, because the software on the disk would no longer work. That may lead to discovery of the virus before it has the opportunity to accomplish whatever task it is designed to do.

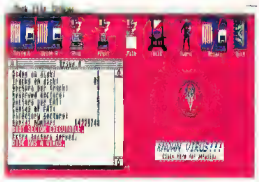
Many viruses run what are known as "counters." Some count the number of already infected disks they have seen, some count the number of disks they infect, while others simply count the number of disks that the machine accesses. In any case, the counting viruses have some threshold they're trying to

FLU

Familiarity with the way a known virus attacks your system is helpful in recognizing when one is present. To that end, you'll find Flu indispensable. It's a collection of the effects of some of the viruses found on the ST. Flu is a demonstration program only — it does not contain any of the virus code. It does contain the nondestructive "attack code" of several viruses. These attacks are either audio or visual, so there is physical evidence of an attack as it occurs. Note: there are no simulations of any of the virus attacks that cause damage to disk data, since there is no way to recognize when such an attack occurs.

To run Flu, copy FLU.ARC and ARCX.TTP onto a blank, formatted disk and un-ARC FLU.ARC by following the Disk Instructions elsewhere in this issue. Make sure FLU.PRG and FLU.RSC are in the same folder. At the Desktop, double-click on FLU.PRG. Flu runs in all three resolutions; documentation is included in FLU.TXT.

VKILLER



Check every disk; each one with a virus must be cleaned.

reach. When they reach that number, they (presumably) consider themselves thoroughly spread and assume it is now time to start their attack.

What a Virus Can Do

Once in your ST, what exactly will a virus do? Almost anything, really — the limits are imagination and code space. The most harmless virus I've seen actually purports to be an antivirus. It blinks the screen on boot-up. The idea is that if you see the screen blink, you know that this harmless virus is on the disk, rather than a more malicious one. It does, however, spread itself just like any other virus.

Several viruses attempt to simulate hardware problems. (Conversly, I've had several pleas for help with a suspected virus that actually proved to be a hardware malfunction.) Frequently these viruses use timers to delay their actions until the system has been running for some time and to spread out their activities to make the problem appear intermittent. Such virus-induced glitches include the occasional faked successful disk I/O, while actually not performing the read or write; altering the data being read or written; and, more commonly, screen-display glitches. It is very difficult for anyone to determine whether such incidents are the result of a virus or an actual hardware problem. When such incidents occur on your system, it's wise to execute whatever virus-detection software you have before lugging your system to have it serviced.

Wide World Photos

Convicted worm creator Robert T. Morris Jr. faces up to five years in prisan and a $250,000 fine for violating the 1986 federal computer abuse and fraud act.

Protecting Your System

Be aware that computer viruses are circulating and can turn up on nearly any disk you receive from an outside source. As I mentioned, viruses have accidently been distributed on commercial games, word processors and on sample disks enclosed with software books.

The simplest and most effective way to protect yourself is to apply write protection to whatever disk you receive before you insert it into your ST — be they from the public domain, a user-group, a commercial source, wherever. Next, make a backup copy, if possible, then run the disk through a virus-check utility. (*Editor's Note: As a matter of policy, START's programs editor runs every submission disk through Vkiller. She often finds viruses.*)

Another very sound defense (especially for hard-disk systems) is what I call the "clean boot disk." Format a disk, write protect it, then check it with a virus detector. From now on always boot up your system with that disk. Try to keep it in Drive A as much as possible, so that any time you reset the system, your clean boot disk is present in the drive. ▶

The ST has fallen victim to a number of known viruses. The public-domain program Vkiller will not only detect a virus on any of your floppy disks, it will also erase the virus if it finds one.

To run Vkiller, copy VKILLER.ARC and ARCX.TTP onto a blank, formatted disk and un-ARC VKILLER.ARC by following the Disk Instructions elsewhere in this issue. Make sure VKILLER.PRG and VKILLER.RSC are in the same folder. At the Desktop, double-click on VKILLER.PRG. Vkiller runs in medium and high resolution; documentation is included in VKILLER.TXT.

If you do find a virus, kill it, then reboot your system with that disk. Once your system is up and running without the virus, check every disk you own. Each disk that has the virus must be cleaned. Note: Vkiller will eradicate boot-sector viruses without altering any files or programs on the disk. You cannot, however, disinfect any disk that must have its own executable boot sector. (Any disk with its own executable boot sector will always instruct you to insert the disk in Drive A and reset or turn off-then-on your computer.) Performing a kill destroys the executable boot sector. If you do come across an infected disk that has an executable boot sector, have it replaced with a clean one.

Finally, back up everything. Hard disks, floppy disks, tapes, whatever. Make backup copies, write protect them and store them in a safe place away from your system. If you're attacked by a destructive virus, your first problem is to rid your system of the virus. Do not go to your backups until you have determined if your problem came from a virus, and if so, that you have removed it from the system. A backup is useless if you give a virus a chance to attack it as well as your working copy.

Despite all the precautions, you still may become the victim of a virus. How do you recognize when an attack occurs? It's not always as simple, or as straightforward, as it seems — what may appear to be a hardware problem may be a virus and vice-versa.

There is no absolute way to determine if a given symptom is caused by a program error, a hardware error, a virus or something else. When files vanish or become unreadable, it may be due to any of several reasons. Poor media or abuse of media is not uncommon. A dirty disk-drive head or one that drifts out of alignment can cause previously reliable disks to produce errors. On the ST, there's the age-old problem of chip sockets having poor contact and early versions had some component reliability problems that could contribute to disk errors. Another, more frequent cause is the use of extended capacity disk formats, some of which are not entirely reliable.

Of all the potential problems to your system, a virus is the easiest to detect.

Play It Safe

Fortunately, of all the potential problems to your system, a virus is the easiest to detect. Use your virus-detect program and start searching. If you can't locate a virus, then your problem could be any from the list above. If you do find a virus, be sure to take every step available to insure that the virus has been eradicated before accessing your backups. ■

George Woodside is well known for his fight against viruses on the ST. He lives in Woodland Hills, Calif.; this is his first article for START.

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proved timing, and a memory use indicator, and supports the extra MIDI out ports of C-Lab's Export module or Dr. T's Phantom. Code size has been reduced so it can now run on 520STs and, for additional sweetening, the price was cut from $350 to $249.

Digidesign made some shock waves by porting its Macintosh Sound Tools digital audio editing system to the Atari. This is a strong show of support as Sound Tools is a premiere professional application, involving dedicated hardware as well as software components. The package retails for under $3,000 and consists of an external A/D and D/A converter, a hardware card for the Atari (Mega 2 or 4 only) and software. Stacy, not supported currently, would require a new computer card, but is a future possibility. Sound Tools provides the digital equivalent of a two-track tape recorder, with CD for better fidelity.

Yet another developer has leaped into the hot generic patch-editor fray. These programs employ device-specific templates along with a common editing/librarian kernel, letting one program take the place of a host of individual patch-editor programs. Previous entrants are X-OR from Dr. T's (currently shipping version 1.1) and GenEdit from Hybrid Arts. The newest is Synergy from Sound Quest, building on their previous Master line of patch editors, with versions available for the Atari, IBM, Mac and Amiga. Presumably patch files created on one computer may be used on any other.

Passport has made good on an earlier promise by porting their Encore professional-level scoring program from the Mac to Atari and IBM. Encore reads Master Tracks native format files as well as standard MIDI files, or you can write a score from scratch (includes playback capability). They have also launched a prerecorded sequence operation called MIDI Data. These are earmarked for the performing or home musician that wants professionally arranged versions of today's songs — without having to do their own sequencing.

Finally, some upgrades have come in from old friends. Dr. T's has released version 3.0 of his flagship KCS sequencer (regular and Level II configurations). New features include a QuickScore MPE module (included) for rapid transcription and display/printing of sequences, significantly improved cueing and controller/synch chasing and the ability to directly read/write MIDI files. From Steinberg/Jones comes Cubase version 1.5. Besides correcting GDOS and TOS 1.4 incompatibilities, it adds a new mixing page edit module. You can use this to define screen faders and controls mapped to sysex parameters or realtime MIDI messages. They also released a patch editor for the E-mu Proteus.

Summer NAMM is scheduled for June in Chicago. ■

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MEDIEVAL FIRE, MODERN PAPER AND FUTURISTIC POWER

In which Bernstein gets burned, and Perez burns rubber.

DRAGONS OF FLAME

REVIEWED BY HARVEY BERNSTEIN

A sequel to Heroes of the Lance, Dragons of Flame is Strategic Simulations' second attempt to translate the wildly popular Dungeons & Dragons Dragonlance module to a computer role-playing game. The result is more of an arcade hack-n-slash with fantasy elements than an intricate role-playing adventure.

When Last We Met

Dragons of Flame picks up where Heroes of the Lance left off. Having previously recovered the Disks of Mishakal, your goal is to gain entrance into the fortress of the evil Draconians, recover the legendary sword, Wyrmslayer, and free the slaves held in the dungeon. You control the same original party of eight characters, with the character in the lead as the active party member. This active member's image on the screen represents the entire party; you control only his or her actions in battle.

In the deepest levels of the fortress, you encounter a never-ending parade of trolls, griffins, goblins and dragons. Your active character can either engage in close combat or fire any weapons (slings, bows or spears) with which he or she is equipped. Certain enemies, however, can only be defeated if the proper character is active. All movement and fighting is done with the joystick. Your magician's spells are accessed through a series of menus, which I found to be an awkward and interrupting task in the middle of battle.

As you progress in the game, you discover better weapons, potions and treasures, but other than looking for hidden doors and traps, there are no intricate puzzles to solve. The interaction with the creatures you encounter is pretty much limited to combat, although you do, occasionally, run into townspeople who offer you clues and join your party (there are two spaces for such additions).

Problems and Recommendations

The Dragons of Flame characters don't grow with experience and their attributes remain fixed, which leads me to my biggest problem with the game: the lack of feeling in absolute control over an entire party of real characters, a hallmark of any good role-playing game.

Graphics and animation are well done — up to ST standards. Each of the characters and enemies are rendered with distinctive detail. The similarity of the different rooms and the obscure pathways, however, makes mapping the game rather difficult. But the background scrolls smoothly as you travel. Game disks are not copy protected but use the manual-based, key-word system.

All in all, Dragons of Flame is a decent enough time — killer for those who like an arcade game with a fantasy subtext. For those of us weaned on Ultima and Dungeon Master, however, it falls one step short of the mark.

SSI's Dragons of Flome.

PAPERBOY

REVIEWED BY GREG PEREZ

The job of delivering newspapers to dozens of waking customers isn't always easy: you have avoid the most treacherous of suburban obstacles on a BMX bike, without even a mumble of thanks from sleepy recipients. This is the saga of our unsung hero. Paperboy from Mindscape gives you a first-hand experience of the trials and tribulations of your friendly neighborhood carrier.

Monday, Monday

Your route begins early Monday morning. The goal is to deliver your pack of papers to your loyal customers who wearily await the morning edition. At the beginning of the game, your customers are displayed on a map that shows the street to which you have to deliver. Depending on the level of difficulty, your street may have differing numbers of customers. Easy Street starts you off with just a few simple deliveries, while Middle Road gives even the tried-and-true delivery boy a rough time and Hard Way may force you to an early retirement if you aren't careful! The customers' homes are colored yellow, while houses of those who refuse your services are black. Depending on how you handle your route, you gain or lose customers.

The adventure begins as you pedal your way down the street. Don't be too cautious: speed may be your only way to dodge oncoming traffic or the neighbor's rabid poodle! Push the joystick up or down to control the rate of pedaling; the fire-button flings newspapers. To score points (and keep subscribers) you chuck a paper to each mailbox or doorstep. But, be careful. If you break anything on a subscriber's house, you can say bye-bye to their subscription. Of course, if you really have the urge to destroy something, you can get bonus points for bombarding any non-subscribers' houses. Once you run out of ammo, you can scoop a pack of papers that waits along the sidewalks.

Arcade Fun

The graphics in Paperboy are entertaining and game quality is as fun as its arcade counterpart. The smooth animation is humorous. Angry neighbors run out of their homes to intercept you, but usually end up kissing concrete thanks to a well-placed copy of the morning edition across the cranium. The obstacles that crowd your route range from a mischievous kid with a killer remote-control car to a construction worker who just happened to be plowing his noisy jackhammer into the middle of your path. (If you survive the route, your bike rolls over to a bonus obstacle course. There are no psychos on this course, but you have to watch out for concrete walls or water-filled canals.)

Although there isn't a whole lot to it, Paperboy does wonders for stress. Rolling down Hard Way, barraging houses with thick newspapers and getting away with it is pretty gratifying after a hard day. Admittedly, Paperboy is somewhat juvenile, but it's darn entertaining.

POWERDROME

REVIEWED BY GREG PEREZ

Take the thrills of today's Grand Prix racing and high-speed jet piloting, integrate them with the excitement of future automotive technol-

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continued from page 81

ogy and you've got Powerdrome by Electronic Arts, probably the hottest and the most imaginative racing simulation available for the ST. Just watching this game being played will send tingles down your spine.

Powerdrome thrusts you into the heat of 25th-century racecraft competition. Your ship, the Turbo Rapide, blasts at blinding speeds down a grueling six-track course, each track consisting of mind-bending curves and underground tunnels. You race against four other pilots who, like yourself, are vying for the prized Cybemeufe trophy.

Powerdrome pushes your ST to the limit.

You have six tracks from which to choose and each presents you with different environmental difficulties. The tracks are long canals made of solid 3-D blocks that beautifully redraw at speeds proportional to your craft. Most tracks are underground tunnels and you may lose your concentration the first few times. They have the most twists and turns (and maybe one or two surprises) and are the ones that turn Turbos into

Electronic Arts' Powerdrome.

crumpled masses of metal. To avoid the inevitable destruction, you can use the Turbo's custom-built force shields. But these fields are like cocoons, adding bulk with each shield. If you set the field to nine, the maximum setting, your going to have a hard time navigating the course efficiently.

For extra speed, depress the left [SHIFT] button to light up your backup afterburners. These babies will push you past the finish line at a mind-boggling velocity. But if used too much, your two engines may blow and you'll have to wait for a tow wagon to pull you back to the pits.

Races begin with you and your competitors lined up in consecutive order of qualifying time. Your craft hovers over the track, deprived of engine power. As soon as the signal turns green, you punch the ignition to power-up your system and give it a little thrust power. To get off to a really good start, ready your afterburners as the light glows green. Once the engines kick in, the afterburners will zip you right by the competition.

The Robopit is the most important stop in Powerdrome. Gone are the days of pit crews because in the 25th century, everything is automated. During practices or races, your Turbo Rapide can rumhle into the pits with a blown engine or smashed nose cone and have it repaired — before your eyes. You also get refuelled, and if you're lucky, a chance to breathe!

Controlling Your Croft

Control of your Turbo can he through either the mouse or joystick. One of the only things that may deter a potential Turbo Ace is the touchy controls that Powerdrome offers. The novice might be easily frustrated with the jerky control and opt for the joystick. But once you get used to the it, the Turbo Rapide is a lean, mean racing machine that responds easily to your every whim. For the avid racer, the mouse might be better, since it's much more natural and responsive. The main menu includes a Tune-Up screen that lets you set air brakes and aerofoil sizes, and customize your ship's control tension to your personal tastes.

Recommendotions

To be totally honest, the graphics in Powerdrome are awesome! They truly have to be experienced to be appreciated. The ST handles the speed of passing tracks very smoothly and makes the Powerdrome environment come to life. Sometimes I find myself unconsciously bobbing and weaving my head to avoid getting beaned by a low overhang that the Turbo Rapide narrowly clears on the screen. Powerdrome pushes you and your ST to the limit. ■

PRODUCTS MENTIONED

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Paper Boy, $49.95. Mindscape, 3444 Dundee Road, Northbrook, IL 60062, (708) 480-7667.

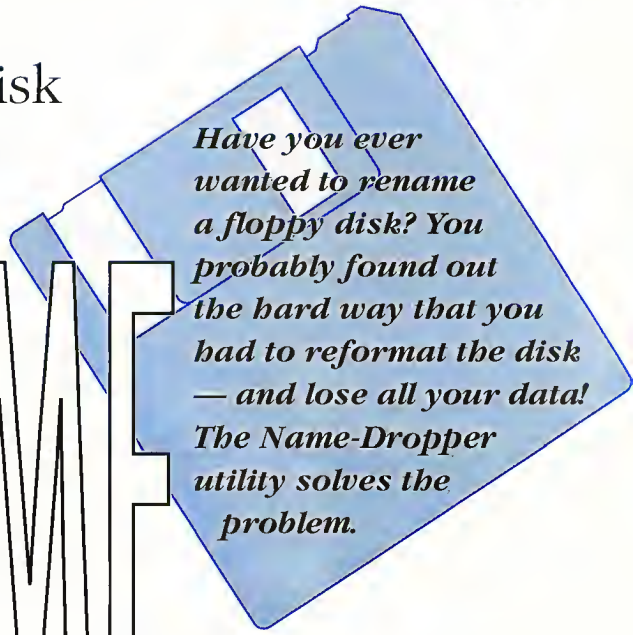
Powerdrome, $39.95. Electronic Arts, P.O. Box 7578, San Matea, CA 94403-7578, (415) 571-7171.

ON DISK

Handy Floppy Disk Relabeler

BY AL HUBBARD

NAME DROPPER



Have you ever wanted to rename a floppy disk? You probably found out the hard way that you had to reformat the disk — and lose all your data! The Name-Dropper utility solves the problem.

Christen disks with impunity using NAMEDROP.ARC on your START disk.

GEM's disk-labeling ability is great. It lets you check the disk's name from the Desktop without taking the floppy out of the drive. It's also useful for cataloging disks; magnetic labeling isn't easily defeated. The only problem with GEM's scheme is that you can't change the label from the Desktop without reformatting your disk. Name-Dropper, written in GFA BASIC 2.0, fixes that limitation. ▶

We have to cheat a little to get around GEMDOS limitations.

Using Nome-Dropper

To use Name-Dropper, copy the files NAMEDROP.ARC and ARCX.TTP onto a blank, formatted disk and un-ARC NAMEDROP.ARC by following the Disk Instructions elsewhere in this issue. Two files will appear: NAMEDROP.PRG and NAMEDROP.LST. Name-Dropper runs in all resolutions.

Run the Name-Dropper utility by double clicking on NAMEDROP.PRG. The program firsts asks you for the floppy drive, either A or B (no other designators are accepted). It then reads and displays the volume label of the disk in the specified drive and asks if you want to modify the label. If the disk is unlabeled, it says so. If you choose to change or add a label, you'll be asked to supply a new name. Name-Dropper will accept only GEM-legal characters.

Use [Backspace] to correct your mistakes. You may also delete the floppy's label. Delete has no effect if the disk is unnamed. Once the modified label is written to the disk, you may either quit the program or repeat the operation.

Let's Look at the Code

The GFA BASIC 2.0 source code is in the file NAMEDROP.LST.

A disk's volume label is stored as a file on the disk itself. It's distinguished from data files by having the label attribute set. So the obvious solution to changing the volume label is to delete the old file with a GEMDOS(65) call and create a new one containing the modified name. The instruction

```
VOID GEMDOS(6D,L:VARPTR(NEWLABELS),8).
```

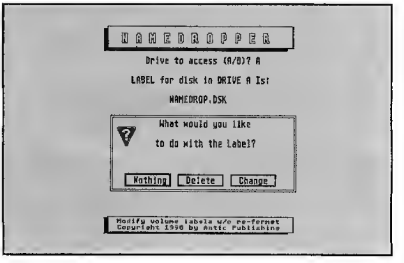
will create the file; the final parameter, 8, sets the label attribute.

Good idea, but the GEMDOS(65) call will delete regular files, not those with the label attribute set. So we cheat. We use the GEMDOS(60) call as before to create a file, except we keep the same filename as that of the existing volume label and we use 0, not 8, as the last parameter. This overwrites the volume label file and changes the attribute to that of a normal, deleteable, file. So we delete it and then call

```
VOID GEMDOS(60,L:VARPTR(NEWLABELS),8)
```

Tricky, eh?

The other part of this program that may be of interest is the procedure GET_INPUT. This procedure acts as an input filter for the keyboard by checking an input character against a list of allowable characters, found in Test$. Valid characters are printed on screen in uppercase. It inserts a period after eight characters are entered. It allows only three characters to be entered after a period, whether the period was placed by the user or the program. In this way only legal GEM filenames are accepted by Name-Dropper.



Nome-Dropper displays the volume nome ond then osks if you wont to modify it.

Indispensoble When Needed

As I mentioned before, Name-Dropper isn't complex, but it's indispensable when needed. The code also points out one thing to remember when you are writing any program: if it appears impossible to do what you want, cheat (or look at things in a different way). ■

Al Hubbard wrote Putmaker for the November 1988 issue of START. He lives in Toronto, Canada.

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Products Update

COMPILED BY MARTA DEIKE, START JUNIOR EDITOR

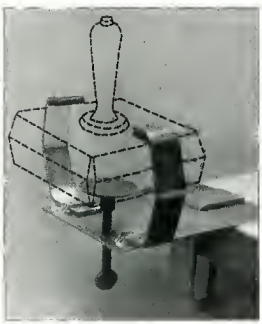
sYbil-ization is Harmonic

The world of MIDI is redefined with the release of **sYbil** from Scorpion Systems Group. sYbil is the first music program intended specifically for real-time performance. sYbil includes remapping and variable sustain features that let you improvise many different instruments simultaneously. Transposition is literally instantaneous.

For example, with sYbil assigned to a single string of your MIDI guitar controller, you can accompany yourself with chords, notes, drums and bass lines which sustain independently of other lines being played on other strings. You can make your solo drum performance sound like a duo, trio or quartet, or you can translate the entire percussion idea into a keyboard performance.

sYbil is not a sequencer; it does not rely on algorithmic composition. It is not a "right note generator" or auto accompanist. In fact, it represents a radical departure from such programs. sYbil multiplies your musical personality. If you need to hear it to believe it, Scorpion Systems has set up a sYbil hotline: (313) 827-1444. sYbil, $299. **Scorpion Systems, 175 Fifth Ave., Ste. 2624 B, New York, NY 10010, 415/864-2956.**

Stik-Gripper



If you haven't heard, Duggan DeZign Inc. has released Stik-Gripper, a steel latch that wraps around your joystick and locks it onto the table. It adjusts to fit on any stick with a minimum base width from 2 1/2" to 4 5/8" and a maximum height of 2 1/8". With both hands free, you'll have more control of your stick, more control of the action. Imagine the true arcade feeling. Stik-Gripper, $18.95 **Duggan DeZign, Inc., 300 Quaker Lane, Ste. #7, West Warwick, RI 02886, (800) 843-1223 (orders) (401) 823-8073 (inquires)**

New Book for ST Owners

Intermediate and Advanced Atari ST Subjects is Ralph Turner's follow-up to his successful *The Atari ST Book*. In his new book, Turner demystifies many of the difficult procedures and concepts that challenge the serious ST user. Written in plain English, this 158-page book is packed with step-by-step instructions that help both beginning and advanced users tap their ST's full potential. Programming knowledge is not required. *Atari ST Subjects*, $16.95. **Index Legalis Publishing Company, P.O. Box 1822-56, Fairfield, IA 52556, 515/472-2293.**

Chaos Strikes Back!

The long-awaited extension to FTL's best-selling Dungeon Master, **Chaos Strikes Back** is here. Chaos begins where Dungeon Master leaves off. It turns out that evil Lord Chaos left traps for you before you captured him in the last game. If you're a Dungeon Master fan, you'll love Chaos, but if you haven't played DM, you won't get three feet striking back.

You can use your original DM characters or select from a new set of champions in the Chaos prison. A utilities disk converts your adventures into a Chaos-saved format: the game disk works the same as the DM disk. Added features include the ability to edit your champion's portrait and exchange it with other players. A hint oracle analyzes your position in the dungeon and gives you different levels of clues, without giving too much away. Chaos Strikes Back, $39.95. **FTL Games, 6160 Lusk Blvd., Ste. C-206, San Diego, CA 92121, 619/453-5711.**

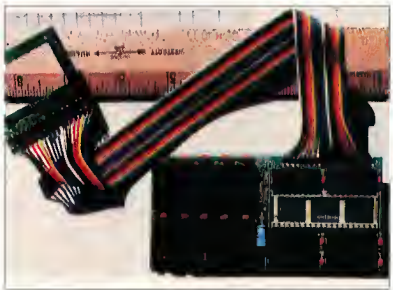
At last, the long-awaited sequel to Dungeon Master, Chaos Strikes Back is here. Maneuver your way through treacherous mazes and past malevalent beings on your quest.

Zubair Memory Upgrade

Three new memory upgrade products are now available from Zubair Interfaces. Z-RAM/2.5 is a 2.5MB upgrade for the 520ST/520STfm. It uses 16 one-megabit RAM chips to add 2MB on top of the 1/2MB that's in the system already, for a total of 2.5MB. Z-RAM/Mega2-to-4 is a 2MB upgrade for the Mega 2 and upgrades the memory from 2MB to 4MB. Z-RAM 3D/4Meg for the 520STfm/1040 upgrades memory from 2.5MB to 4MB. This board has a jumper that lets you select 2.5MB to 4MB of total system RAM. All boards involve easy, solderless, installation.

Zubair also has the new ST/Ime, an internal lithium battery/backed-up clock calendar for the 520ST/520STfm/1040ST. It fits under one of the TOS ROM chips and the 10-year lithium battery leaves the cartridge port free for other add-on products. Z-RAM/2.5, $129.95 (without RAM chips); Z-RAM/Mega 2-to-4, $149.95 (bare board); Z-RAM 3D/4Meg, $149.95 (without RAM chips); ST/Ime, $59.95. **Zubair Interfaces, Inc., 5243B Paramount Blvd., Lakewood, CA 90712 213/408-6715**.

Zubair's Z-RAM 3D/4Meg upgrade board is small and easy to install.



If you have a new product for the ST, we'd like to hear from you. Please send press releases and product photos to ***Products Update****, START Magazine, 544 Second Street, San Francisco, CA 94107*

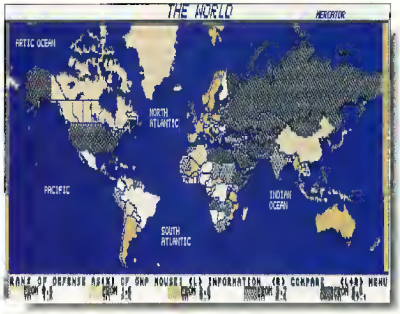
MichTron BBS 3.0

MichTron's BBS creation kit is released as BBS 3.0. It's capable of three incoming lines through the DC-Port plus one on the host console; on multi-port systems, there's an inter-line chat mode which lets you have conference-type calls (like CompuServe). It supports the standard file transfer options: XMODEM, XMODEM-CRC, XMODEM-1K, ASCII and YMODEM. BBS 3.0 also has its own built in language, the MichTron Control Language, with control structures similar to C (while/for/repeat). As sysop, you can maintain the board (log on and do your thing) without shutting the whole thing down. You can also sysop by phone or appoint others in remote locations to help you. MichTron BBS 3.0, $79.95. **MichTron, 576 S. Telegraph, Pontiac, MI 48053, (313) 334-5700.**

Supra Supramodem

Supra Corporation, manufacturer of the SupraModem 2400, has released the SupraModem 2400 Plus external modem. It features MNP classes 2-5 and CCITT V.42bis protocols, which are error-correction and data-compression features that let you communicate at fast rates. Set your terminal to 9600 baud; SupraModem 2400 Plus automatically determines what kind of modem is at the other end of the phone line and adjusts its rate and protocol for optimal communication. You'll need a computer with an RS-232C interface, ▸

communications software, and a cable to connect the modem and computer. Everything else is included: the modem, manual, power adapter and telephone cable. SupraModem 2400 Plus, $199.95. **Supra Corporation, 1133 Commercial Way, Albany, OR 97321, 503/967-9075.**



Where is Japan? Geography Tutor tests your knowledge of the locations of countries and facts about them.

A World on Your Screen

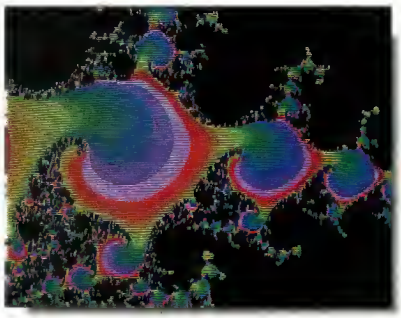
An electronic atlas is available for your ST. Geography Tutor is a program of maps and databases of the world. It includes various facts from major religions and languages to military and education spending. You can also create your own database without affecting the standard program base. The standard program maps North and South America, Europe, Africa, the states and provinces of North America and the world at large. There are currently three supplementary disks available and will continue to be created. Geography Tutor works on the ST and Mega, and on both color and monochrome monitors. Geography Tutor, $39.95. **ASDE Inc., 151 rue Jolicoeur, Hull, Quebec, Canada J8Z 1C8, (819) 770-7681.**

Filed Under Talk

A promising new BBS support board has just been released by Twilight Zone Software. Written entirely in GFA BASIC 3.0, **STark** lets you set up your own BBS through a fully GEM oriented systems editor. Among the many features, it offers Command Stacking, Hotkeys, Pre-Formatted Input and a built-in Auto Backup. It can handle up to 256 file areas (each area over 32,000 files) and up to 256 message bases (each base up to 512 messages). STark supports standard file transfers such as XMODEM, ASCII and YMODEM, as well as ZMODEM protocol. It also is S-Net and FoReM compatible.

There are two specialized support BBSs available from which registered sysops can download daily updates and module programs. All updates are free. STark, $50.00. **Twilight Zone Software, P.O. Box 7246, Louisville KY 40257, Voice: (502) 955-6125 or 897-1582; Data: (502) 897-1589 or 955-6955.**

Create your own magical order with Fractal Fantasy from Maxwell C.P.U. Includes a 3-D projection feature to bring the fantasy to life.



More from MaxWell

MaxWell Computer Products, makers of the DTP tool Silhouette, brings two more accessories to your ST: **Fractal Fantasy** and **LaserPR.ACC.**

Fractal Fantasy lets you create quick fractal designs. It includes such features as three algorithms, color-palette select and save, 512-color cycling through the image, saving as low and high resolution DEGAS files, stop, save, continue and 3D projections.

LaserPR.ACC gives you a quick configuration of HP LaserJet and DeskJet printers or compatibles. You can print two pages per sheet in a two-column format. It also sports an auto-load RAM disk, spooler and system information.

Fractal Fantasy, $23.95; LaserPR.ACC, $19.95. **MaxWell C.P.U., 507 W. Baseline, Lafayette, CO 80026, 303/666-7754.** ■

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Requires: 1 Megabyte RAM and CYBER STUDIO

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by Tom Hudson

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Requires: CYBER STUDIO

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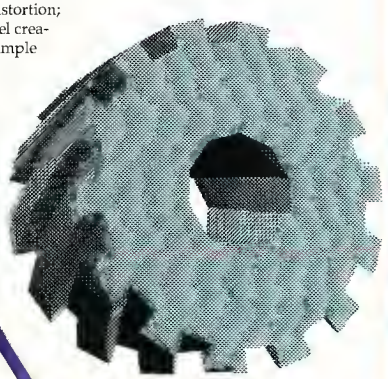

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ST Cyber Graphics

Two frames of CYBER STUDIO animation without CYBER PAINT enhancement. The same two frames are shown below them, after a CYBER PAINT touch-up.

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BEST SELLER

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by Jim Kent

This program does it all! CYBER PAINT 2.0 is an animation system; a time-oriented paint program; a "cel" (celluloid) animation program; and a digital optical printer.

CYBER PAINT 2.0 contains all the standard paint tools—box, brush, rubber, line, fill, etc.—but adds the dimension of time animation. Images spin and glide around the screen like a magic carpet. Special features include a pixel f/x menu; palette change per frame and cut & paste color range; and an automatic traveling mask. All these features make CYBER PAINT 2.0 the fastest possible way to create professional looking animations.

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BYTE MAGAZINE

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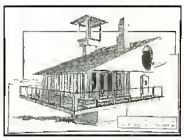

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Insertions: May 4, 1990
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On Sale: July 1, 1990

September Issue
Insertions: June 4, 1990
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On Sale: August 1, 1990

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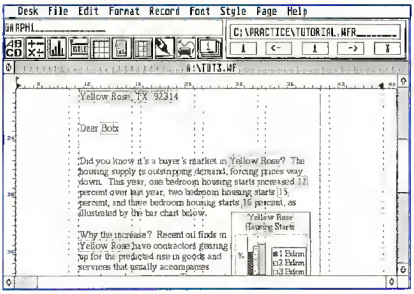

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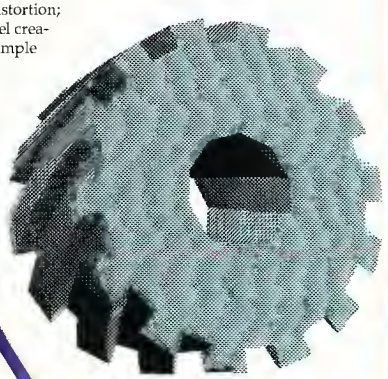

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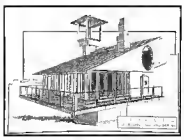

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